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Project B-143

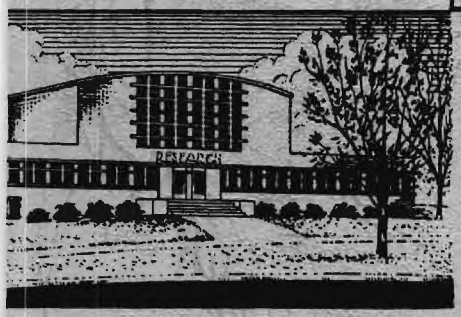
Analysis of Intercounty Commuting of Workers in Georgia

In cooperation with

Employment Security Agency
Georgia Department of Labor

Ben T. Huiet, Commissioner

John L. Fulmer
Project Director



Engineering Experiment Station
Georgia Institute of Technology
Atlanta, Georgia

Analysis of Intercounty Commuting of Workers in Georgia

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Ben T. Huiet, Commissioner

John L. Fulmer
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Assisted by

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Georgia Department of Labor

Industrial Development Branch
Engineering Experiment Station
Georgia Institute of Technology
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FOREWORD

The urge to find profitable employment is causing numerous Georgians to migrate yearly to large Georgia cities and to cities outside the State. But a vastly greater number of Georgia workers drive to another county for work, either daily or on some other time schedule.

Labor is Georgia's greatest industrial resource. The large yearly migrations reveal that Georgia has a surplus of labor. But the labor available to a prospective industrialist is even greater than migration figures indicate. As the story of commuting told in this report makes clear, a very large labor potential exists for almost any point in Georgia accessible by highways. The figures show that a manufacturer can count on workers not only in the immediate area of the plant, but up to 60 miles or more in any direction.

This report is the result of a joint undertaking on the part of the Industrial Development Branch of Georgia Tech's Engineering Experiment Station and the Employment Security Agency of the Georgia Department of Labor. Through its vast coverage of firms and fine field organization, the Georgia Department of Labor obtained the data and helped in their technical interpretation. The Industrial Development Branch, with the assistance of the Rich Electronic Computer Center, made the analysis. The entire project was under the direction of Dr. John L. Fulmer.

We hope that this joint effort will produce results of real value to Georgia's future growth and prosperity.

Ben T. Huiet, Commissioner
Georgia Department of Labor

Kenneth C. Wagner, Head
Industrial Development Branch

ACKNOWLEDGMENTS

This study, involving as it did reports from about 6,000 firms, representing approximately 608,000 employees, would not have been possible without the cooperation of many persons in the companies surveyed. For such a fine, helpful spirit on the part of practically all of Georgia's industries, the authors are proud to make this acknowledgment.

The following persons assumed the burdens of clerical work in the numerous mailings of forms, editing of questionnaires, preparation of statistical compilations, and otherwise helped with the study in numerous ways: Mrs. John R. Martin and Mr. Marshall Miller, Industrial Development Branch of Georgia Tech, and Mr. Ernest Johnson and Mrs. F. P. Small of the Reports and Analysis Section, Employment Security Agency, Georgia Department of Labor. We gratefully acknowledge the help of all these persons.

A number of the staff of the Industrial Development Branch read the report editorially and for methodology. In this connection Dr. Kenneth C. Wagner, Head; Dr. Ernst W. Swanson, Senior Research Economist; and Mr. Robert L. Bullock, Research Assistant, offered numerous, valuable suggestions for improvement of the report.

We sincerely appreciate also the efforts of several individuals from other units of the Engineering Experiment Station for their part in this study, namely: Mr. Edgar W. Manseau, Rich Electronic Computer Center, who programmed the computations on the IBM 650 computer; Mr. Frank S. Longshore, Technical Information Service, who edited the manuscript; and Mr. Ed Garrett and other personnel in the Photographic Laboratory, who reproduced the report in final form.

HIGHLIGHTS OF THE STUDY

Considering Fulton and DeKalb Counties as one unit, it is estimated on the basis of sample returns that 136,000 workers in Georgia reside in a county different from the county in which they work. Rough estimates treating Fulton and DeKalb counties separately indicate that 41,000 workers commute between these two counties. The estimated total number of nonresidential workers is therefore 177,000, or 18.4 per cent of the total nonagricultural employment. Over half of the larger total is in the Atlanta area. The six large population counties contain nearly two-thirds of the commuter total.

At least 6,000 Georgians drive across state lines for jobs. The number of workers from other states who come to Georgia is almost three times as great. Of the 16,000 who come to Georgia nearly half work in the Columbus area. Heavy movements of workers into Georgia occur at Augusta, and to a lesser extent at Savannah and at Rossville, opposite Chattanooga.

For the six large cities, immediately adjacent counties accounted for 75 per cent of the intercounty commuting. Concentric circles inscribed 30 miles from each of these cities contain 95.3 per cent of all workers. Despite widespread and spectacular attraction of workers from distant points by large, nationally renowned manufacturing establishments with high wage levels, commuting of workers to manufacturing as a whole is less on the average than for all industries, but greater than any other industry class except construction. Intercounty workers commuting to the six large areas account for 29 per cent of the nonagricultural employment of the immediately adjacent counties plus those one county away. The workers from these counties have an annual take home pay of an estimated 212 million dollars. It is estimated, however, that 40 per cent of this is spent in the area of work.

Tabulations for 186 large firms employing 500 workers or over show that they not only provide 30 per cent of all Georgia's nonagricultural jobs, but that their employment is distributed to all of Georgia's 159 counties. The county with the smallest employment in such firms is Union County with two workers, and the largest is Fulton County with 76,150. Twenty-seven per cent commuted outside the home county for work.

In this study, analysis of factors affecting commuting shows that the relative amount of commuting increases directly with the size of city, density of population, and size of plant. The size of plant has a remarkable effect. The ratio of commuters to residents increased from 8.2 per cent for manufacturing firms of 1 to 19 workers to 26.5 per cent for firms of 500 or more workers. One hundred and eighty-six firms with 500 or more workers had 30 per cent of Georgia's total workers, yet had 45 per cent of the commuters.

Comparisons of commuting between industry types show that construction, with 25 per cent, has the highest ratio; service, with a ratio of eight per cent, is lowest; manufacturing, transportation and public utilities are also relatively high.

Approximately 6,000 firms cooperated during December 1957 to March 1958 in supplying data on residences of their workers. Seventh-three per cent of all establishments receiving the questionnaire filed a report. Their reports covered the residential status of nearly 608,000 workers. This is a sample coverage of 63 per cent of nonagricultural employment in Georgia.

Personal histories were obtained for 69 workers in the Atlanta area. Averages for this group show that the typical commuter is 32 years old, drives 33 miles to work, spends one hour in each direction, has been commuting 5.2 years, and spends 40 per cent of wages in city of work. Forty per cent ride in carpools regularly with five other riders. Each pays five dollars weekly. About one-fourth of commuter automobiles transport one worker; another eighth transport two workers.

The basic reason for commuting is the compelling need for a job. Those planning to move to county of work are relatively few and are offset by those who have recently moved from the place of work. A variety of reasons were given pro and con for distant commuting. But firm attachment to friends, a community, and a "way-of-life" appear to be the chief motives.

In conclusion, the results of this study show that 186 large companies have a big impact on Georgia employment and affect every county in some way. They account for 45 per cent of the commuting. Jobs provided by six large centers in Georgia to counties in the area have a big impact on nonagricultural employment and on income of counties in their labor markets. Over one nonagricultural worker in six crosses a county boundary to the plant area at regular or irregular intervals. Despite the wear-and-tear and irritations of traffic, commuting to work is on the increase. It is increasing traffic congestion and, therefore, is becoming increasingly important as a factor in highway planning. From the standpoint of factory location, the labor supply is quite important up to at least 30 miles in any direction. Large, prestige companies can expect to get over 50 per cent of their labor force outside the county of work, mainly from counties within 60 miles of the plant.

INTRODUCTION

The probable labor supply available to a firm at a particular site is always an important consideration to industries deciding among several alternative sites. It is also significant to plants already located, especially if they are in the process of expanding. The total labor supply which is available to any actual or prospective industrial site consists both of the labor living in the immediate locality and of those workers living outside the area within commuting distance. To analyze the potential labor supply of a particular site, therefore, we must be in a position to accurately assess the number of workers who can be attracted as commuters from distant points. Accurate information on the volume of commuting in different localities of the state relative to important causal factors is necessary not only for a correct analysis of current labor supply but also to enable preparation of reliable estimates for some period in the future.

Another objective of the study is to provide data which will assist state and other agencies to perform a better job of planning public facilities. The volume of commuting over arterial and other roads adds to traffic congestion. The data, therefore, will be of real pertinence to the State Highway Department, and also to traffic departments of towns and cities in their advance planning activities for highways, access roads, and streets. Agencies planning parking space and other public facilities will also need to take into account the impact of people brought into an area through commuting.

Still a third objective is to provide data to the Census Bureau, the Bureau of Employment Security, and the U. S. Bureau of the Budget to enable advance definition of the standard metropolitan area for the cities of Atlanta, Augusta, and Columbus for the 1960 Census. These agencies have under consideration the addition of counties to each of these areas for the 1960 Census. Accurate determination of the volume of commuting from nearby counties to these areas will permit reliable selection of these counties on the basis of the criteria which have been established for this purpose.

Aside from the above reasons for this study, the data on net movement of workers between counties have a vital bearing on basic economic research

underway on per capita income estimates by counties. The problem is to determine the total personal income received by the residents of the different counties of Georgia for a recent period. When workers cross county lines to work, corrections must be introduced to allow for the income brought home from other counties. In other words, differences between county of work and county of residence must be determined. According to this method, income earned is credited not to the employee's county of work but to his county of residence. Since the volume of commuting in our modern economy has become quite large and is increasing, the significance of this adjustment to accurate county income estimates becomes apparent.

The method of procedure involved a sample selection of over 7,800 plants[1/] from 27,700 firms who regularly report employment and wages to the Georgia Department of Labor in connection with the employment security program. Another 263 large firms and institutions were selected from noncovered establishments, colleges, certain hospitals, government agencies, etc., which are not required to report under this program. In addition, 55 large firms in other states were contacted for commuting of workers outside Georgia.

The sampling operation described herein was applied to the 27,700 firms under the Employment Security program. This large group of firms was stratified by area, industry group, and size class. Within each stratum samples were drawn by random methods to Bureau of Employment Security specifications with modifications upward in a number of cases where industries were quite limited in number in some of Georgia's smaller counties.

The mailed questionnaire was employed, using intensive follow-up by letter, telephone, and personal contacts. Seventy per cent of all firms in the sample returned the questionnaire during the period December 1957 to March 1958. Usual procedures in editing and checking the schedules were followed.

1/ Defined as any employment point of a company. Companies with more than one employment point were counted as many times as there were employment points.

Data on county of residence[2/] of nonagricultural workers relative to the county of work were obtained from companies and institutions operating in most of the counties of the State. The objective was to compute accurate commuting data for each county in Georgia, but the size of the universe and the sample response limited this to 103 counties. It was desired also to obtain estimates separately by industry classes (construction, manufacturing, transportation, trade, etc.) so far as possible. However, limitations on size of the universe and the sample returns confined this to six industry classes for the five largest population centers. For another 53 counties the sample response was of significant[3/] size to prepare estimates for manufacturing and nonmanufacturing separately. Forty-four counties had enough data to permit estimates for all industrial classes together only by county of residence. The remaining 56 counties were pooled solely for statistical balancing purposes.

The assumptions which govern the application of the sample results to the universe are: (1) random selection of samples and the very high percentage of response of firms in the sample give a probability sample in the usual meaning of this concept, and (2) the commuting behavior of sampled workers is representative of those covered under the employment security program. The sample is not considered representative of workers not exposed to the sample selections. The workers outside the universe from which the sample was drawn are generally employed by small firms, primarily service establishments, or persons who employ domestic workers. Because of the nature of such firms and their wage levels, it is not believed that commuting to their places of business is of any real significance. Any possible commuting of agricultural workers on farms is also omitted.

2/ The difference between the number of employees residing in a county and the number working in the county where the plant is located was taken to be tantamount to the number of commuters. Although plants were requested to check on the accuracy of their payroll data, and it was suggested that a current survey be made through supervisors, it is not believed that the reports reflect fully the current status of the residences of workers. Due to frequent moves of workers, however, it is believed that such errors will be to a large extent compensated. Errors of overestimate which might occur would be further compensated by tendencies toward increased commuting. See Appendix B, Section 5.

3/ For a standard error of estimate not to exceed 10 per cent.

Through programming on the IBM 650 computer in Georgia Tech's Computer Center, the results obtained from the sample were related to total employment for all firms encompassed by the study and inflated to get the estimates on intercounty movements of workers. Although sample firms reported current employment in the period December 1957 to March 1958, the basic comparisons were to the March 1957 employment data. Statistically, the sample results are related back to the benchmark date and distributions of commuters to county of work balance to the March 1957 totals. For the level of total estimates, the reference date for this report is therefore March 1957. The distributions for counties, however, reflect the characteristics of employment during the period December 1957 to March 1958, when the questionnaires were filled out.

The overall results of the sample inflation show that the State as a whole, considering the Fulton-DeKalb complex as one county, has 136,000 workers who reside outside the county of work. If Fulton and DeKalb Counties are separated on an approximate basis,[4/] an additional 41,000 commuters are involved. The total number who cross one or more county boundaries is then estimated at 177,000. On the basis of the State's total estimated nonagricultural employment of 961,300 for March 1957, the ratio for commuters is 18.4 per cent. Over 50 per cent is confined to the Atlanta Metropolitan area -- almost two-thirds to the six largest population centers (Atlanta, Albany, Augusta, Columbus, Macon and Savannah).

4/ See section on "Cross-Town Commuting in the Atlanta Area."

INTERCOUNTY MOVEMENTS OF WORKERS FOR SIX LARGE AREAS

All Industries

Data on relationship of county of residence to county of work of six large areas (Atlanta, Albany, Augusta, Columbus, Macon and Savannah) for all industries are shown in Table 1. The data show that from 76 to 93 per cent of the workers live in the county where they work. An average of 85.8 per cent for all six areas reside in the county of work.

The table for the six large areas gives three classes of counties. There is first off the county of work, which is the home county for 86 per cent of the workers. The immediately adjacent counties are called "first tier" counties. Those which are in the next line of counties outside these are designated as "second tier" counties. For the six cities listed above the first tier counties, including adjacent state areas in this category for such cities as Augusta, Columbus, and Savannah, include 10.7 per cent of the workers. Thus they account for 75 per cent of the intercounty movements for these areas as a whole. However, between the six areas this proportion varies from 48 per cent for Albany to 92 per cent for Columbus.

It is interesting and highly significant that the great majority of intercounty movements of workers for Columbus and Augusta is really interstate, in that they come from Alabama and South Carolina. Fifty-one per cent of Augusta's commuters come from South Carolina and 83 per cent of Columbus' drive from Alabama. The reasons for the high ratios for these two cities is that both areas constitute part of a metropolitan area which extends across state lines. In the case of Augusta the city area in South Carolina is not only relatively large but the large Atomic Energy Commission plant in Aiken County, South Carolina, which offers high wage scales, draws large numbers of people from Augusta and nearby counties. In this interchange of workers, Augusta gains (details shown in Chart 4, below). The metropolitan area of Columbus also extends into Alabama. The nearby Alabama areas are not well developed, and therefore the interchange works mainly in the direction of Columbus.

Another factor which causes both Columbus and Augusta to draw so heavily from adjacent states is that both centers are the largest cities for a considerable distance in any direction but particularly towards Alabama and

TABLE 1

Percentage Distribution of Workers to County of Residence for Six Large Areas

County	Atlanta Fulton DeKalb	Albany Dougherty	Augusta Richmond	Columbus Muscogee	Macon Bibb	Savannah Chatham	Total Six Areas
RESIDENCE AREA:							
County of work	85.7	82.7	82.5	76.1	91.8	93.0	85.8
First tier counties	10.7	8.3	6.4	2.1	4.3	2.7	8.2
Adjacent states	---	---	9.0	19.8	---	1.4	2.5
Second tier counties	1.5	5.4	0.7	0.7	1.5	0.9	1.4
Other counties	2.1	3.6	1.4	1.3	2.4	2.1	2.1
Total for all residence areas outside county of work	14.3	17.3	17.5	23.9	8.2	7.0	14.2

South Carolina. They therefore are the only major employment outlets for the surplus population from small towns and farms for a considerable distance.

Both cities, along with Savannah, are in poorly developed agricultural areas with low population density. The number of people available to work from nearby Georgia counties is small. This is true also of the South Carolina counties which adjoin Savannah.

The table shows that 14.2 per cent of the employed labor force of these six areas live in counties other than the county of work. This ratio is based on the employment of 439,000 represented in the sample. But the sample coverage is incomplete in that it includes only state-insured employment, plus noncovered employment[5/] for firms of 100 or more workers. Omitted, therefore, are workers of small firms of 1 to 3 workers which are not in the job insurance program and those of the noncovered firms which employ 1 to 99 workers. The actual number of employees who live outside the county of work is regarded as complete, however, because of the generally low rate of commuting of workers in the firms which could not be included and for other compensating factors.[6/] Another factor which affects this ratio, and in this case tends to make it higher, is the large volume of commuting across the Fulton-DeKalb boundary in the Atlanta industrial complex.

Chart 1 presents graphically the county of residence of workers for these six centers. The county of work is shown in dark cross-hatching; the numbers plotted in these areas show the number of workers who both work and live in the county of work. Workers who reside outside the area of work (heavy cross-hatching) are shown by a more lightly designated hatching in the counties around the county of work. The first adjacent counties, shown in single hatching, are the "first tier" counties referred to earlier. The ring of counties next to those immediately adjacent are dotted and are designated as "second tier". The numbers shown in both first and second tier counties give the number of workers who reside there but who commute to work

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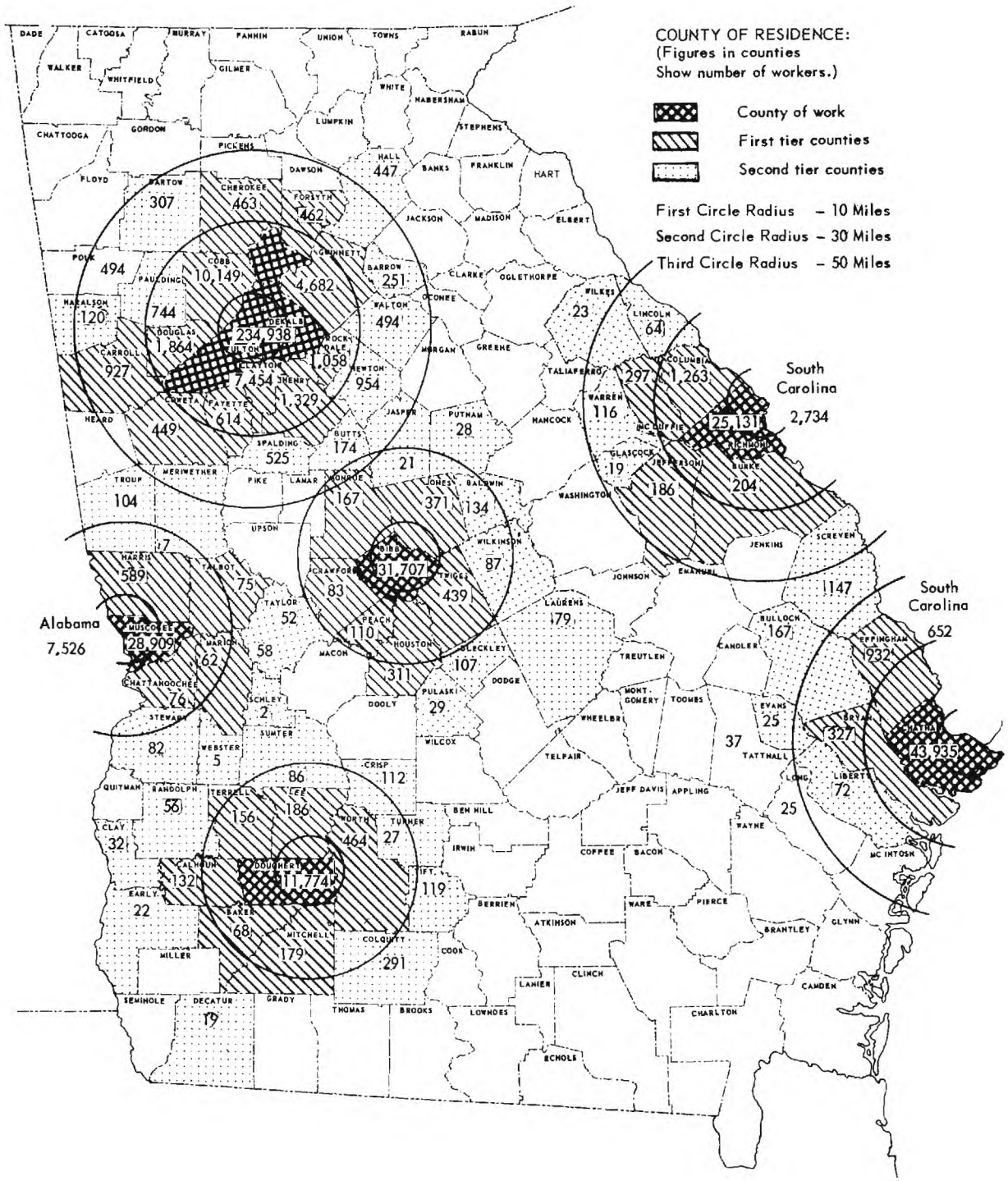
5/ Includes workers in firms not included in the job insurance program of the Georgia Department of Labor.

6/ For reasons as to why it is not desirable to extend the sample returns to the unrepresented employment from the small firms, see Appendix B, Section 5.

CHART 1

ALL INDUSTRIES: COUNTY OF RESIDENCE OF WORKERS FOR SIX LARGE AREAS



in the central county (heavy cross-hatch). For convenient reference, concentric scales are superimposed at 10-, 30-, and 50-mile intervals.

Atlanta, because of the complex nature of the metropolitan area, shows the greatest spread of counties. Significant commuting is apparent also up to a distance of 50 miles and beyond. Savannah has the most limited employment spread, primarily because residence areas south and east are prohibited by the Atlantic Ocean. This is probably the reason Savannah has the smallest amount, relatively, of intercounty movement of workers of any of the large cities.

The following tabulation shows the proportion of workers[7/] who reside within 30 miles of the central point of the county of work.

City	County	Percentage of workers residing		
		In county of work	Between county of work and 30-mile radius	In 30-mile radius of center of work area
Atlanta	Fulton & DeKalb	85.7	9.3	95.0
Albany	Dougherty	82.7	10.0	92.7
Augusta	Richmond	82.5	13.0	95.5
Columbus	Muscogee	76.1	19.7	95.8
Macon	Bibb	91.8	4.7	96.5
Savannah	Chatham	93.0	3.3	96.3
TOTAL		85.8	9.5	95.3

We see from the above tabulation that nearly 86 per cent of the workers live in the county of work. This analysis for distance shows that over 95 per cent live within a 30-mile radius of the center of the county of work. It is significant that the ratio for individual areas, except Albany, varied about one point from this average. In the Albany area the very large Marine supply base attracts considerable long distance commuting.

7/ The number of workers within counties has been allocated on the basis of logarithmic relationships. Workers from nearby states have been apportioned on the same basis as from adjacent counties of Georgia

Another highly important relationship shown by the tabulation is that the proportion of workers resident in the zone which extends between the county of work and the 30-mile circle in any direction tends to offset variations in the percentage of workers who live in the county of work. For all areas, residents in this area accounted for two-thirds of all workers who reside outside the county of work.

Factors causing variations in the proportion of workers residing in the county of work have been discussed above. They were: nature of boundary of city, concentration of population in nearby areas, and special installations offering unusually attractive working conditions. It appears therefore that the 30-mile zone removes most of the effect of these differences.

Manufacturing

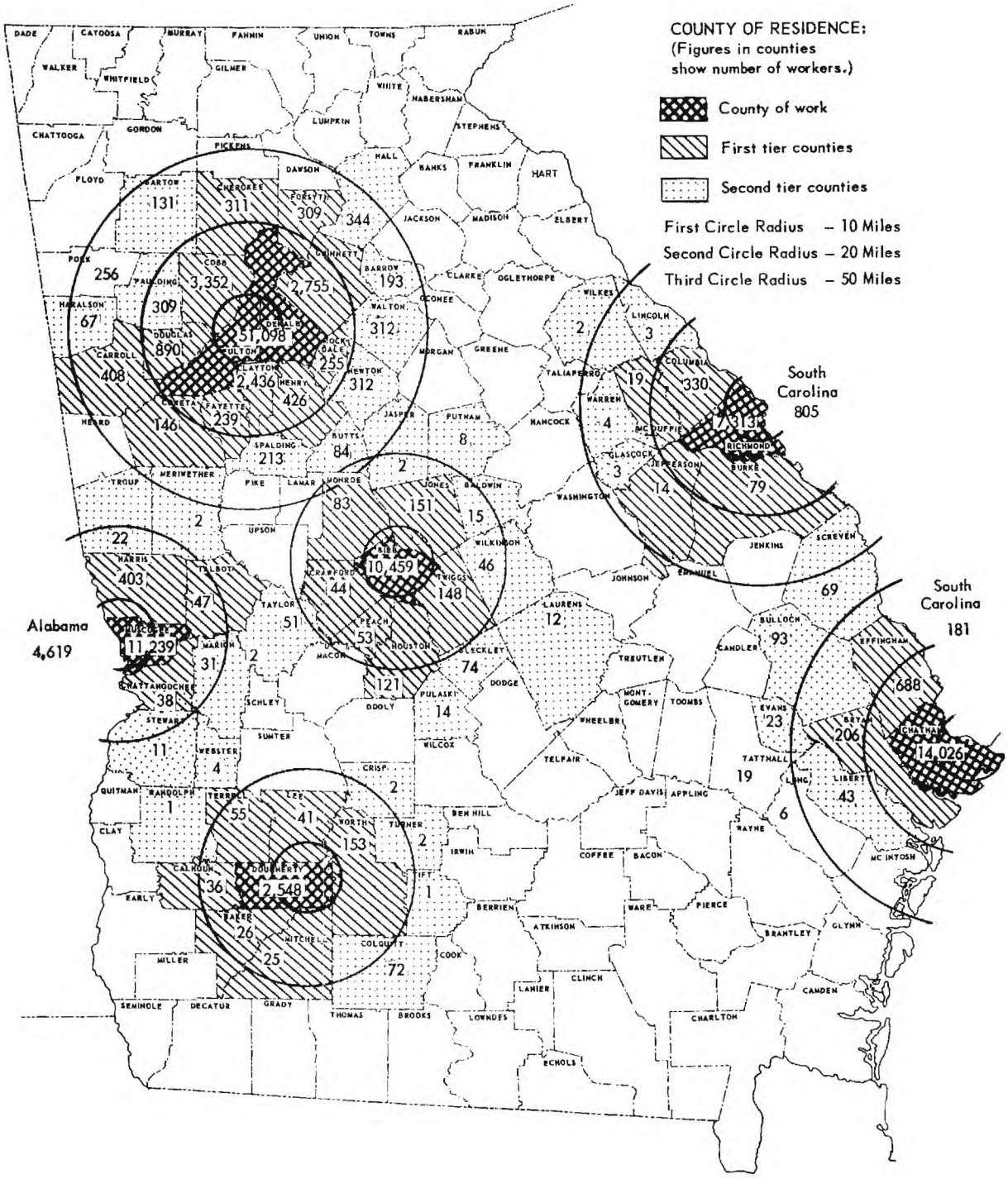
Chart 2 shows the distribution of workers in manufacturing to county of residence for six major areas. The general picture of the spread of counties for each area appears to be about the same as for all industries, depicted in Chart 1.

Analysis of the number of workers in manufacturing residing outside the county of work discloses that it is nearly half again as large as for all industries. However, the ratio for manufacturing workers is not higher in all six areas. It is substantially greater for Atlanta, Columbus, and Savannah, and considerably lower than for all industries in Albany, Augusta, and Macon. Atlanta, Columbus, and Savannah have large manufacturing establishments of companies of national renown with high wage levels. This is especially true of the Atlanta area which has a number of such manufacturing operations. Albany, Augusta, and Macon have heavy concentrations of textiles which have relatively less commuting than some other types of manufacturing. Columbus is also a great textile center, but there are mitigating circumstances which produce heavy commuting anyway.

The effect of prestige firms with high wage scales on the relative number of workers from outside counties can be determined from statistics on the aircraft and automobile assembly operations, involving several different establishments in the Greater Atlanta area. The data indicate that these plants obtained 54 per cent of their workers from counties other than the county where the plant is located. This is a ratio 140 per cent greater than for all manufacturing in the area.

CHART 2

MANUFACTURING: COUNTY OF RESIDENCE OF WORKERS FOR SIX LARGE AREAS



In the six areas, first tier counties (including adjacent states) contribute 16.4 per cent of manufacturing workers as compared to 10.7 per cent for all industries. In the 30-mile zone, excluding the county of work, 14.4 per cent of manufacturing workers are found; 9.5 per cent of the workers for all industries are found in this zone. Making the comparison on the basis of the total number of workers outside the county of work, it is found that 82 per cent of manufacturing commuters come from the first tier counties (including adjacent states) and 72 per cent from the 30-mile zone. Both ratios compare to 75 and 67 per cents respectively for all industries.

The conclusion therefore is that a relatively larger proportion of manufacturing commuters reside in the first tier counties and in the 30-mile zone than workers for all industries combined.

Despite the spectacular effects of large manufacturing companies on commuting of workers, statistical factors determine that the composite of commuting for all industries is larger and also involves greater distances. First, all industries (which include also the commuting for manufacturing) represent a larger combination of circumstances represented in the greater range of employment opportunities. All industries are also more widely distributed as to job points than manufacturing.

Secondly, while the prestige companies draw workers from greater distances, as has been seen above, much of industry in Georgia is represented by textile plants which are not characterized by commuting to the same extent as the higher wage industries -- such as aircraft and automobile assembly in the Atlanta area and pulp and paper in the Savannah area. Augusta, Macon, and Columbus are heavy in textiles. For two of these areas, however, the relatively lower commuting of textile workers is offset by other types of establishments. In the Augusta area, for instance, the A.E.C. plant across the river in Aiken County, South Carolina, is a great employment magnet. The large military installations in Columbus and Albany produce similar results. Another factor is that the concentrated population in the towns and rural areas across the river from Columbus is a great stimulus to workers commuting to jobs in any Columbus establishment over the short distances involved.

Impacts on Counties from Which Commuters Originate

Impacts can be shown very roughly in terms of employment and wage earnings. Estimates have been made of the effect of employment in the six major centers on the first and second tier counties and some more distant counties. These estimates show increases in total employment of 54,200 workers and in wage earnings of 212 million dollars annually. Seventy-three per cent of the employment and 75 per cent of the wage effects were generated in Fulton and DeKalb counties. About 29 per cent of total nonagricultural employment in the adjacent counties was accounted for by commuters to six large centers.

CROSS-TOWN COMMUTING IN THE ATLANTA AREA

The data in the preceeding section on commuting for six large centers did not distinguish between Fulton and DeKalb counties. Covered employment data are not reported separately for these counties because addresses of plants are not often clear as to whether they are in Fulton or DeKalb county and the distinction is not needed for Employment Security purposes. Yet it is known that a very heavy volume of commuters move between these two counties. In order to get a rough measure, the sample data for the two counties have been separated and then inflated by approximate methods. The results disclose that in excess of 41,000 workers are involved in the interchange between residences and jobs of these two counties, and the amount of cross movement of worker traffic is very large.

Considering the relation of Fulton County only to the first tier of adjacent counties (Chart 3), 55,400 workers come to Fulton County for jobs. But 14,800 go from Fulton to these counties. However, the four metropolitan counties and to a lesser extent Gwinnett and Douglas counties are primarily concerned in the exchange. They account for 96 per cent of the commuting into Fulton for the first tier of counties. In turn they receive 99 per cent of the workers who commute from Fulton County.

In Chart 3, the width of the arrows shows the relative size of commuting from adjacent counties into Fulton. Over 34,000 commuters originate in DeKalb County, four times the next largest county. DeKalb accounts for three-fifths of the commuters from first tier counties into Fulton County, Cobb another seventh, and Clayton County an eighth. Likewise in out-commuting from Fulton County, DeKalb receives almost one-half and Cobb nearly a third. In the exchange DeKalb sends a net of 27,000 and Cobb, 3,600 workers to Fulton County. Gwinnett County has 37 per cent of its workers living and working in the home county, 37 per cent working in DeKalb, another 20 per cent in Fulton County.

The data show that Douglas County's economy is dominated even more so by work in other counties. Of the total number of workers on which we have reports, two-thirds work in Fulton County and another 9 per cent in Cobb County. Further details on this interchange of workers between counties in the Atlanta area are given in Table 2 below:

CHART 3

GRAPHIC REPRESENTATION OF NUMBER OF WORKERS COMMUTING INTO FULTON COUNTY FROM ADJACENT COUNTIES

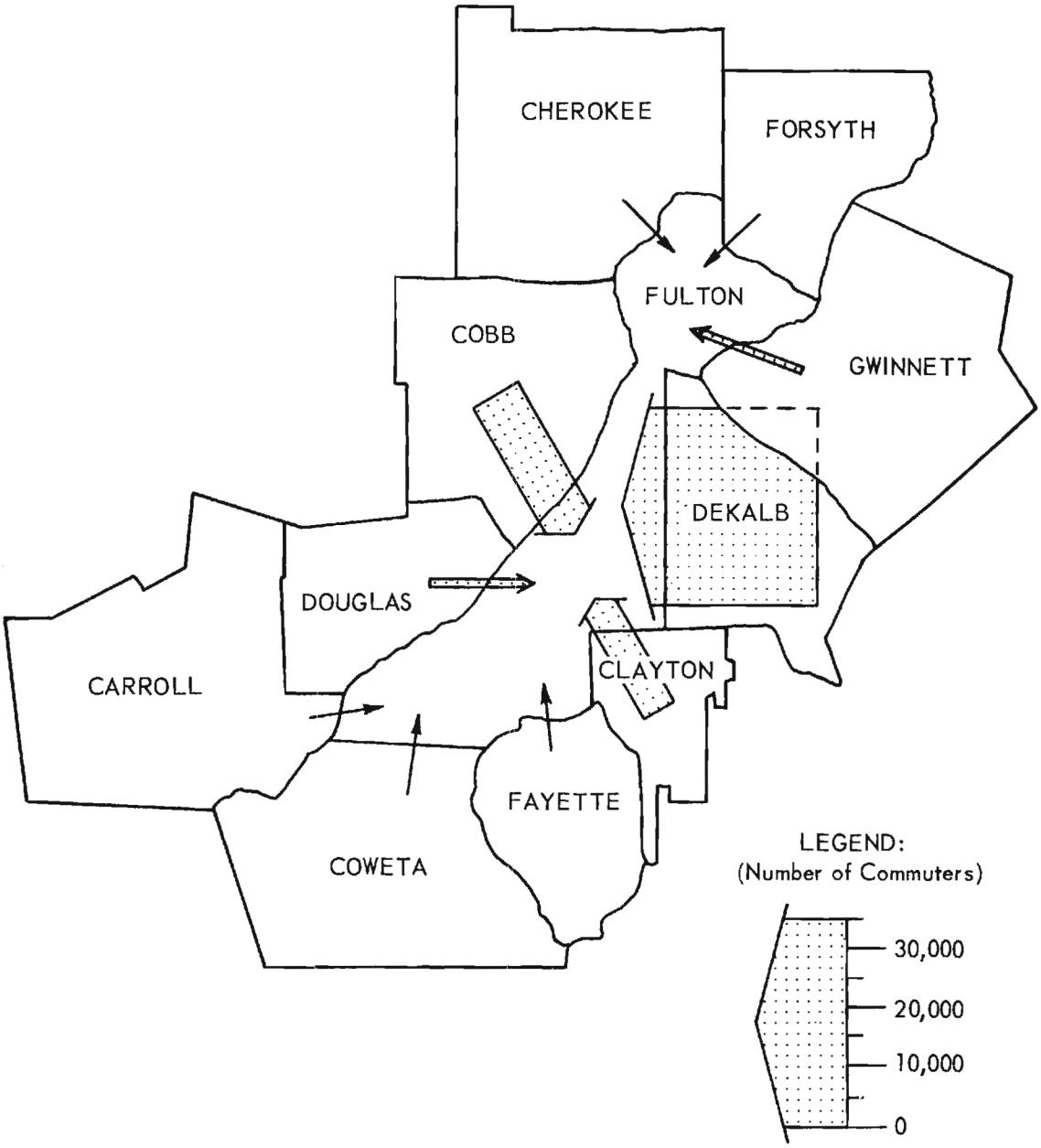


TABLE 2

Cross-Town Commuting to Work in the Atlanta Area

Residing in	Working in -					
	Clayton	Cobb	DeKalb	Fulton	Gwinnett	Total
Clayton	1,310	35	253	7,067	29	8,694
Cobb	29	17,971	768	8,505	--	27,273
DeKalb	34	876	13,723	34,187	41	48,861
Fulton	1,960	4,937	7,108	179,920	67	193,992
Gwinnett	29	143	3,128	1,554	2,842	7,696
Carroll	--	348	106	821	--	inc.
Cherokee	--	818	250	213	--	inc.
Coweta	7	--	13	436	--	inc.
Douglas	--	260	30	1,834	--	inc.
Fayette	76	5	6	608	--	inc.
Forsyth	--	114	254	208	126	inc.
TOTAL	3,445	25,507	25,639	235,353	3,105	inc.

Analysis of summary relationships in the table discloses that two counties (Clayton and Gwinnett) have a net of 60 per cent of their workers employed in other counties. DeKalb County is quite impressive in having a net gain of 23,200 from the exchange. This gives a ratio of 48 per cent. In the case of Cobb County the net gain is only 6 per cent. But gross commuting is quite large. Cobb exchanges 8,500 for 4,900 with Fulton and just about breaks even with DeKalb. Other counties which send relatively large numbers of workers to Cobb County, offsetting about half the loss to Fulton, are Gwinnett, Carroll, Cherokee, Douglas, and Forsyth.

Only Fulton County employs more workers in establishments in the county than reside there. The excess is 41,400 workers, or 21 per cent. The number does not include workers from second tier and other more distant counties who come to Fulton to work.

The method of calculation understates the number of residents in the county of work because of incompleteness of data on small firms, domestic servents, and other types of services. None of these categories would have

significant commuting. Therefore each would increase primarily the home county data. Largest deficiencies in home county estimates are expected for counties with large population, such as Fulton and DeKalb, where relatively more domestic help and other services are employed. The ratios on net commuting given above are high although the net number of commuters should be approximately correct, since the omissions affect only the number of residents in the county of work.

In conclusion, Fulton County, which provides 41,000 more jobs net than it has resident workers, is a strong magnet for migrants of the State and the rest of the nation. It is an even stronger attraction to workers who commute, in the broad sense, from counties in North Georgia. Fulton County attracts 55,000 workers from the first tier of adjacent counties, it sends 15,000 back to these. Thus the reverse movement of commuting in Fulton County is one-third the size of workers coming to the County. Both the size of this local commuting and its interchange show the complexity of our modern economy, the willingness of workers to endure fatigue and irritations driving through heavy traffic to work in order that their families may retain a favorite home in a desirable community. However, workers' freedom of choice of jobs and ability to drive to them by a privately owned conveyance adds considerably to traffic congestion and probably one-third to workers' traffic.

INTERSTATE EXCHANGE OF WORKERS

From the standpoint of job searching, state boundaries are little different from county lines. Workers find them intangible. The factors which attract workers are city size, prestige of the employer, wage levels, and appeals of city life versus appeals of small town and country living.

The extent of commuting across state lines was also investigated as a significant part of this study. Movements of workers from adjacent states to Georgia locations were reported as a part of the regular questionnaire. Movements of workers from Georgia to employers in adjacent states was a separate problem The questionnaire was modified to permit out-of-state reporting, and mailed to employers of 100 or more workers in nearby locations. Officials of Chambers of Commerce and state agencies supplied addresses. The same follow-up procedures were followed as with Georgia firms, and the response was almost as good.

The results show that at least 5,800 workers[8/] from Georgia find work regularly in nearby states. While a few workers are reported to cross the line from Georgia at several points, they are highly concentrated in the Chattanooga and Augusta areas. Chattanooga affords the attraction of a large city, and several large firms located between the city and Georgia add strength to the attraction. The large A.E.C. plant in Aiken County, South Carolina, across the river from Augusta, Georgia, pays very good wages, and provides the major source of employment. There are a number of textile plants and other installations which provide additional opportunities.

Data from Georgia firms show that 16,000 workers from other states find employment in Georgia, mainly in Columbus, Augusta, LaGrange, Rome, and a few other points. Thus nearly three times as many workers from nearby states find jobs in Georgia as workers from Georgia find jobs in these same states. About half of this employment to out-state workers is provided in Columbus which is a large and attractive city on the boundary line between Georgia and Alabama. In addition to several large, prominent textile concerns,

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8/ Because of incomplete coverage of firms who might employ Georgia workers, it appears that this estimate is a minimum.

the military installations at nearby Fort Benning provide much employment both to residents from Columbus and also from Alabama.

In the interchange of workers between Georgia and South Carolina the Augusta area had a net loss of workers. Prior to the establishment of the A.E.C. plant near Aiken, it appears that the net movement was toward Augusta. However, after this plant was established in South Carolina with its higher wage level, numerous workers were attracted from Augusta and also from several interior Georgia counties. The net employment balance, therefore, has shifted from Augusta to the Aiken area.

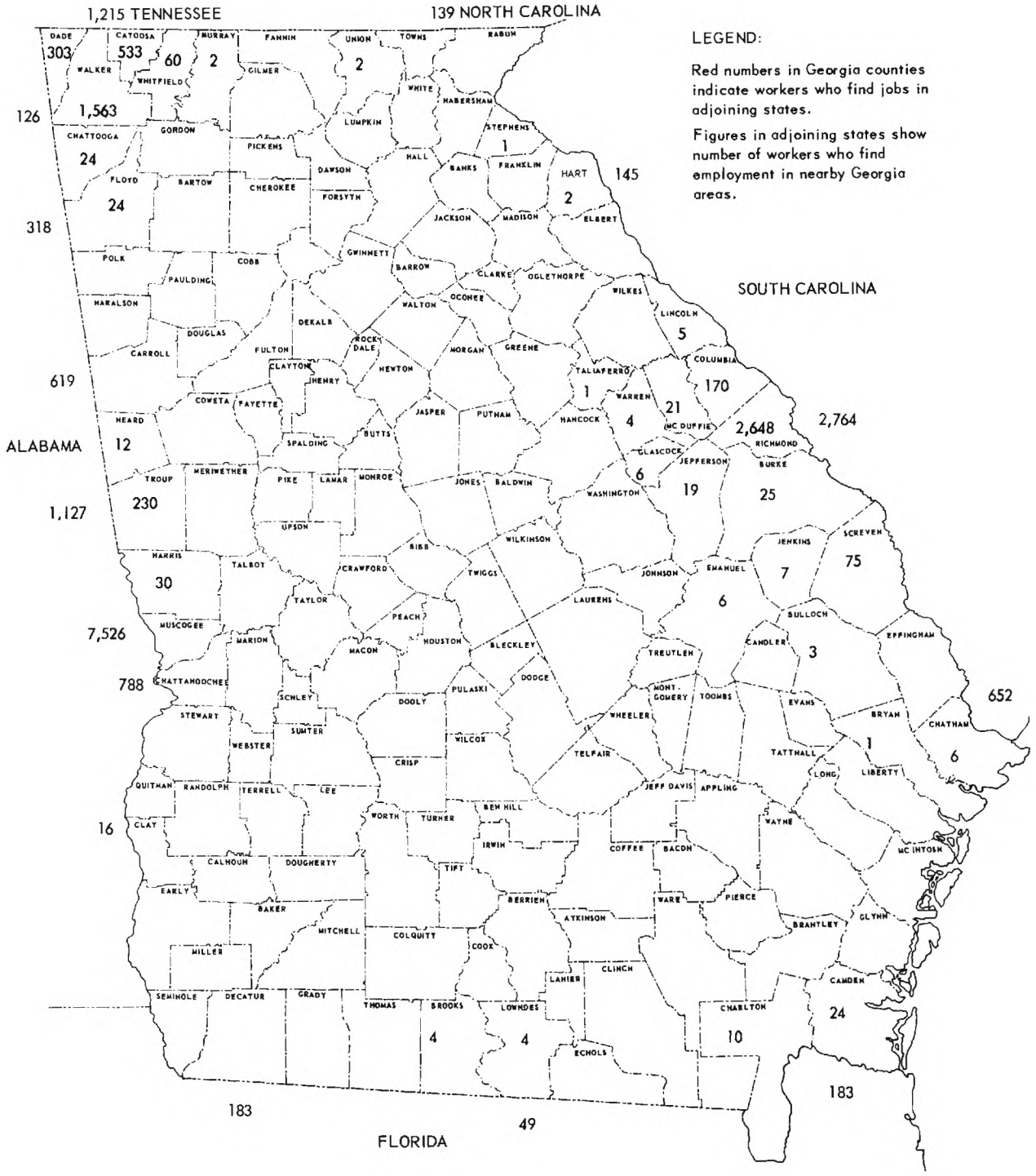
The estimates indicate that 2,459 workers from Catoosa, Dade, Walker, and Whitfield counties, Georgia, find employment in the Chattanooga area; the reverse movements show 1,215 workers coming to Georgia. It is believed that the estimate of workers going from Georgia counties to Chattanooga is too small because of incompleteness of coverage of firms in the nearby Tennessee areas which employ Georgia workers.

Chart 4 shows relationships between gross employment of border counties of Georgia and areas of adjacent states. The red numbers in Georgia counties show the movement of workers to nearby employment points in other states. Figures plotted in different locations in adjacent states give totals for workers finding work in Georgia. The differences between the two sets of figures provide the net balance of the interstate employment interchange.

The conclusion is that Georgia provides relatively greater employment opportunities to workers from other states because Georgia has more large population centers on or near its boundaries.

CHART 4

INTERSTATE EXCHANGE OF WORKERS



IMPACT OF LARGE FIRMS ON EMPLOYMENT IN GEORGIA COUNTIES

There is great interest in large firms and their influence on the State's economy. Large firms are important in their impact on total employment but are even more important in terms of leadership in business and public affairs. However, many large firms were once small; but unlike typical small firms, they found the combination of markets, finance, business leadership, and other circumstances which enabled them to grow along with the economy.

Through intensive follow-ups and as a result of fine cooperation, reports were received from practically all of the very large firms. In order to show the impact of these large firms on employment in Georgia by counties, tabulation of reports by county of residence was made for firms covered[9/] and non-covered[10/] which employed 500 or more workers.[11/] There were 186 of these reports, most of which represented multiple-unit operations in numerous areas of the State. Their specific employment impact is shown in Table 3 and Chart 5.

The data show that less than one per cent of the business firms account for 30 per cent of the State's employment. But this ratio varied considerably within the State. In Albany and Dougherty County they accounted for 20 per cent, while in Macon the ratio was almost 44 per cent.

Chart 5 gives the total number of employees of these 186 firms by counties. It also shows how the various establishments of these companies tend to be concentrated in the upper population centers. Atlanta accounted for 20 per cent of the total number. The six large counties had 41 per cent of the installations but accounted for 52 per cent of the total large firm employment. This indicates that size of firm tends to be a function of city size.

It is highly significant that so great is the economic strength of these companies that all 159 of Georgia's counties have workers represented in one or more of their installations. The number of workers varied from two in

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9/ Covered under the employment security program.

10/ The noncovered represents government agencies, educational institutions, certain hospitals, and other service agencies.

11/ Based on number of workers in the establishments of a company which reported county of residence of workers.

Union County to 76,150 in Fulton County. Other counties which gained large employment from these firms were: Bibb, 16,239; Muscogee, 14,964; Chatham, 14,416; and Richmond, 10,000. The fact that the branch installations tend to be so highly concentrated in a few counties indicates that numerous workers are involved in commuting to these plants. Of the total employment of 296,304 reported by these firms in the period of the study, 27 per cent commuted outside the home county for work. There were, however, 7,449 workers from other states who held jobs with these companies in Georgia. Approximately 110,000 of the large firm workers are employed in the Atlanta Metropolitan area. Another 59,000 are employed in the other five major cities of Georgia. The proportion for the six cities is 57 per cent. This should be compared to a ratio of 55 per cent for the total of all nonagricultural employment for these centers. The conclusion is that the large population centers which are noted for the number of large firms also have a ratio of employment in them that is larger than for the rest of the State. It should be noted that the employment totals include more than manufacturing firms. Included also are transportation, and public utility companies, large financial institutions and trade concerns, as well as colleges, hospitals, government agencies, and other service institutions.

TABLE 3

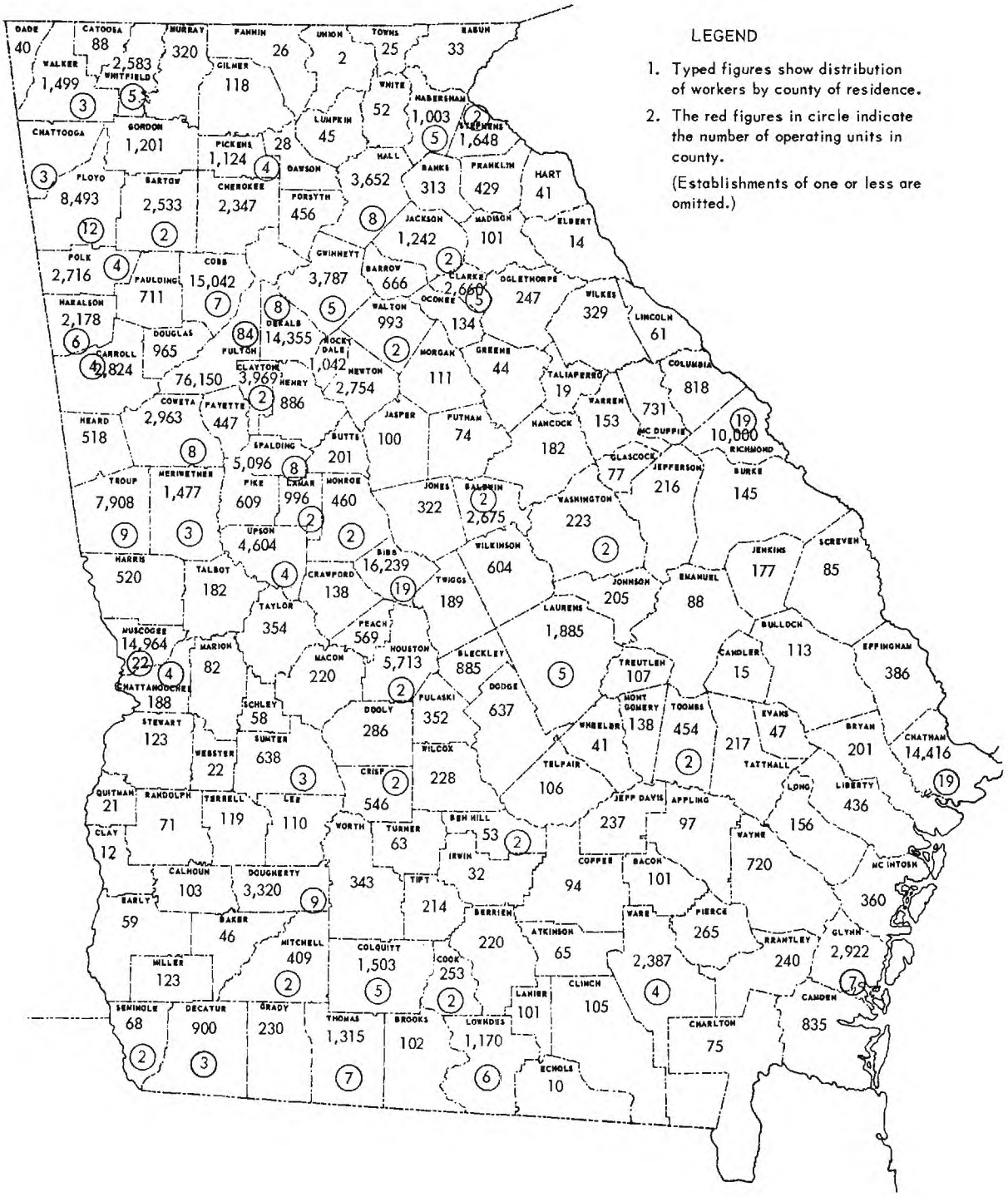
Relation of Employment of 186 Large Firms to Total Employment of Specified Areas in the State

Area	Total Employment *	Large Firms	Per Cent Total
Fulton and DeKalb	312,170	90,505	29.0
Chatham	54,375	14,416	26.5
Bibb	36,665	16,239	44.3
Richmond	35,150	10,000	28.4
Muscogee	38,990	14,964	38.4
Dougherty	16,301	3,320	20.4
Subtotal	493,651	149,444	30.3
State Total	954,150	288,855	30.3
Out-of-state	---	7,449	---
Total	---	296,304	---

* Average of estimates for November 1957 and March 1958.

CHART 5

EMPLOYMENT IMPACT OF 186 LARGE FIRMS ON GEORGIA COUNTIES



FACTORS INFLUENCING COMMUTING

Commuting, like migration, is caused by search for jobs and for certain conditions associated with jobs. These conditions are associated primarily with wage level and working conditions. But unlike migrants many commuters resist for a long period the move to be near the place of work; some never move. Some are in transition and between jobs, still others shift jobs frequently either through choice or of necessity because of the business cycle or employment deficiencies. The cyclic nature of American business and production line strains cause many workers to shift jobs frequently. These and other uncertainties cause workers to stay put in a home community where social relations are firmly established.

Data from the reports of companies do not permit an intensive analysis of all the factors and conditions which cause workers to retain a residence for a long period at a considerable distance from the place of work. A small number of questionnaires were filled out by individuals to get some insights into the personal factors involved. The number of reports, however, were too few to provide a thorough-going analysis. Review of literature on reports by others throws light on many of the factors influencing commuting.

Thompson[12/] in a study of commuting in West Virginia found that the relative size of the rural-farm population, size of city, condition of highways, level of earnings, sex of workers, and marital status of employees were correlated positively with distance of commuting. On the other hand traffic congestion, average period of service, and age of worker tends to be negatively related to distance of commuting; however, the long distance commuters contained proportionately a larger number of persons in the intermediate age brackets.

He also found that hourly employees tend to commute longer distances than white-collar and supervisory employees. Large plants in rural or small towns have more long-distance commuting than plants of similar size in urban sites; plant size had influence only when it was large in relation to the

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12/ James H. Thompson, "Commuting Patterns of Manufacturing Employees," Industrial and Labor Relations Review, Vol. 10., No. 1, (October 1956), pp 79-80.

labor or housing resources of the community. Differences in commuting exist between industry types, for example between manufacturing, transportation, trade, etc., mainly because of wage level, skill requirements, and working conditions.

Others who have studied this problem report some additional reasons. Martin and Johnson[13/] in a Kentucky study of commuting concluded that, while size of city was an important factor affecting commuting, the rate of growth of a city is even more important. They found, as did Parnes[14/] for Columbus, Ohio, that when industrial employment of cities expanded rapidly the average commuting distance increased substantially.

It would be natural to assume that these workers would later move nearer to or into the area of the plant. The evidence from two studies indicates otherwise, however. Thompson's[15/] study showed that few of the persons living twenty to thirty miles away when hired moved closer at a later date. Parnes'[16/] Columbus, Ohio, study found that, while initial employment of youngsters was likely to be from the neighborhood, the older workers were more frequently from other areas, as job shopping is a characteristic of workers with some work experience.

The points extracted from these studies undoubtedly are also true for Georgia. From data available, verification of their exact application to Georgia can be made only for city size, class of industry, and size of firm. The effect of city size has already been shown in a general way. On this point results show that the Atlanta Metropolitan area accounts for over half of the State's commuters and the six major cities for almost two-thirds. Observation teaches us that large firms attract workers from a greater distance than smaller firms. Evidence on this factor has already been cited

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13/ James W. Martin and John L. Johnson, "Labor Market Boundaries -- Intercounty Commuting to Employment," Current Economic Comment, Vol. 17, No. 2, (May 1955), p. 31.

14/ Hubert S. Parnes, A Study in the Dynamics of Local Labor Force Expansion, (Columbus: The Ohio State University Research Foundation, 1951), p. 161.

15/ Thompson, op. cit., p. 79.

16/ Parnes, op. cit., p. 161.

in part with data given for 186 companies having 500 workers or over. They account for 45 per cent of Georgia's commuters. Analysis for the aircraft and automobile assembly operations in the Atlanta area show that over 50 per cent of their workers come from counties outside the county of work.

The data from our samples are employed here to isolate the effects on commuting of size of city, size of firm, and class of industry. To show the effect of population size, the counties of the state have been classified into four groups as follows:

Group I	Largest population center of Georgia. Metropolitan Atlanta. Includes Clayton, Cobb, DeKalb and Fulton counties. Note that DeKalb and Fulton counties have been separated. The estimates of commuting on an approximate basis are employed.
Group II	Next largest population centers. Includes Augusta, Columbus, Macon, Savannah cities; and Bibb, Chatham, Muscogee, and Richmond counties.
Group III	Medium size towns. Represented by such centers as Albany, Athens, Brunswick, LaGrange, Rome, Valdosta, and Waycross. Includes following counties: Clarke, Dougherty, Floyd, Glynn, Lowndes, Troup, and Ware.
Group IV	Smaller towns. Represented by such towns as Bainbridge, Carrollton, Cedartown, Dalton, Gainesville, Griffin, Moultrie, Toccoa, Thomaston, and Thomasville. Includes following counties: Carroll, Colquitt, Decatur, Hall, Polk, Spalding, Stephens, Thomas, Upson, and Whitfield.

In the analysis which follows, the commuting ratios pertain in the case of industry classes to 697,000 workers covered under the employment security program plus 122,000 noncovered employees. The ratios obtained are relative to 819,000 workers. They do not apply directly to the State's estimated employment of 961,300 nonagricultural workers. It has not been possible to allocate the difference, 142,300 workers, to the seven industrial classifications employed below.

The section which pertains to size of firm relates to sample returns from the 697,000 covered employees. The purpose of both parts of this analysis is to show relationships of factors to commuting rates. It is not designed to obtain absolute commuting ratios for each city group, industry class, and

size of firm. An absolute ratio for the State has been derived above, in the section entitled: "Intercounty Movements of Workers for Six Large Areas."

The combined effect of population and industry class on the percentage of the labor force which resides outside the county of work is shown in Table 4. Note that except for Population Group I, the different industry classes fail to maintain a regular position with respect to each other. Group I is the Atlanta area and is substantially higher than all other groups irrespective of industry class. Group II is especially lower than the other classes. This includes Augusta, Columbus, Macon and Savannah. The peculiar factors which cause commuting to be low in these areas have been discussed. The other two population groups fail to show a regular relationship.

TABLE 4

Effect of Population Size Group and Industry Class on Per Cent Commuters

Industry Class	City Size Group I	II	III	IV	All Size Classes
	(per cent)	(per cent)	(per cent)	(per cent)	(per cent)
Construction	36.6	21.4	16.9	20.2	25.5
Manufacturing	39.5	17.4	15.6	13.9	16.9
Transportation, Communication and Public Utilities	35.1	10.0	14.0	10.7	14.1
Retail and Wholesale Trade	30.7	10.2	12.4	9.0	11.3
Finance, Insurance and Real Estate	29.3	7.0	15.9	12.9	10.4
Service and Miscellaneous	12.8	10.6	5.8	10.0	7.6
Government	25.1	9.0	11.0	5.5	17.2

NOTE: Based on inflated values for 697,000 employees in Employment Security Program and 122,000 workers in noncovered establishments.

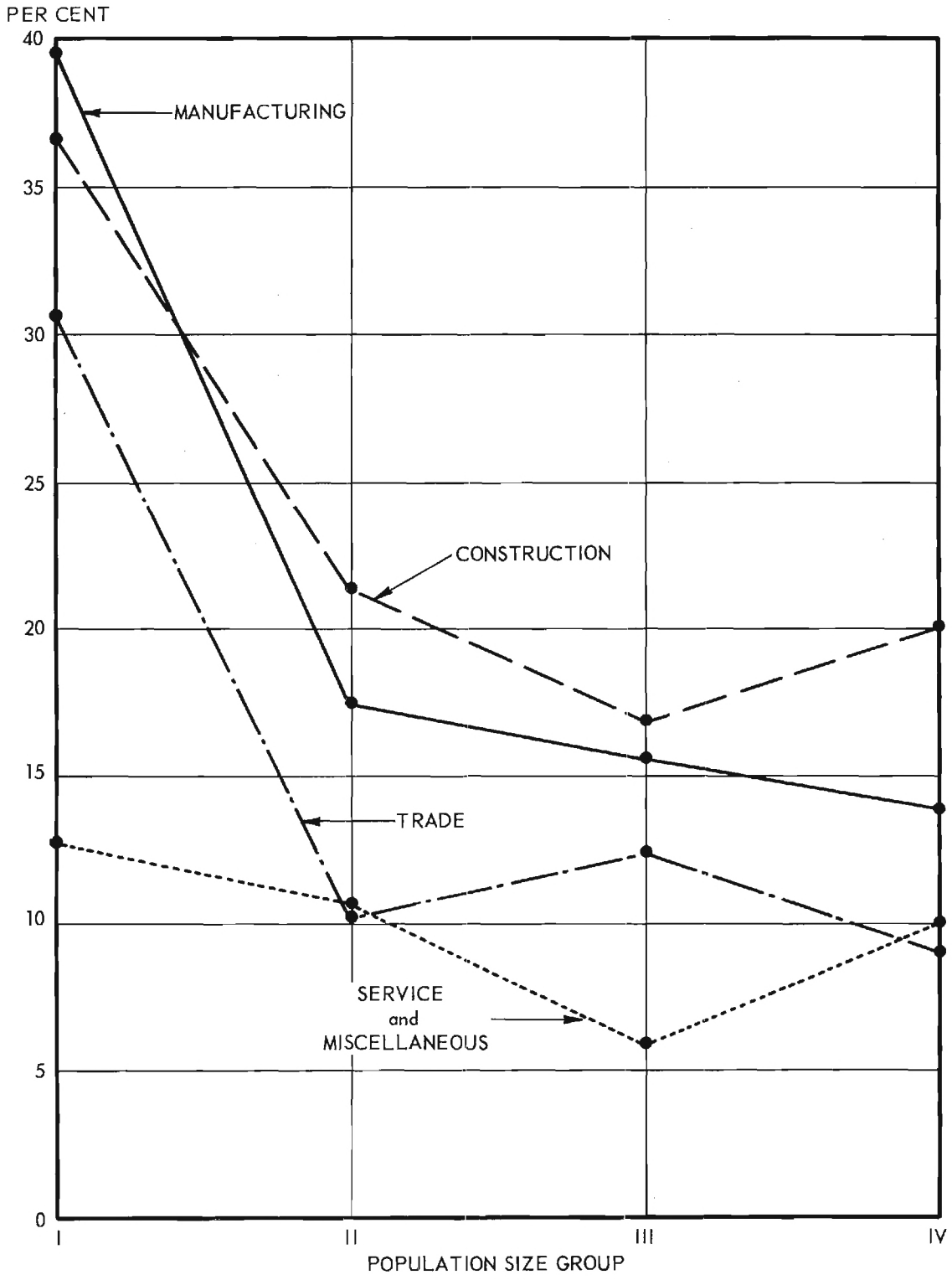
The ratio of commuting for construction is generally the highest and service and miscellaneous the lowest irrespective of population group. Government, manufacturing, and transportation and public utilities are also high along with construction. Trade and finance tend to be low with service. The three high ratio industries have almost twice as much commuting as the three low ratio industries. The fact that much residential construction is on the perimeter of cities and that some construction firms move frequently, taking many workers on the move, explains why construction is high. Government, manufacturing, and transportation and public utilities are also relatively high because of wage level and prestige factors.

Chart 6 depicts these relationships for four industry classes. It shows that, except for the Atlanta Metropolitan area which is clearly higher than any other county areas, the effect of city size groups is mixed. Atlanta is ahead of the other areas in large part because of the separation of Fulton and DeKalb counties which generate a great deal of commuting in an area which is in reality a part of the city complex. Therefore in the section which follows on the effect of size of plant, population groups will be ignored.

The trend lines given in Chart 7 show the remarkable effect of company size on the proportion of workers who reside outside the county of work. The ratio of commuting rises sharply with company size. The ratio for manufacturing establishments with 500 or more workers is 3.2 times that of firms of 1 to 19 workers. Small plants have neither the wages, the working conditions, nor the prestige to attract workers from any great distance. The effect of size for the manufacturing and nonmanufacturing categories is about the same for size groups 20 to 99 workers and 100 to 499 workers. Size classes 1 to 19 and 500 plus are substantially lower for manufacturing than for nonmanufacturing. The obvious explanation for the differences between the two categories for small size firms is due to the heavy weight of construction firms in nonmanufacturing. They are more heavily concentrated in the 1 to 19 and 20 to 99 size classes, and have the highest rate of commuting of any other industrial class. On the other hand, the larger commuting for 500 plus size class for the nonmanufacturing firms is due in part to the transportation, communication, and public utility companies which are located in the largest size class. They have relatively high commuting. It is also partly due to the influence of several large government installations such as Warner Robins and the Marine supply base near Albany. All installations of this type are nonmanufacturing.

CHART 6

COMPARISON OF PERCENTAGE OF WORKERS COMMUTING BY POPULATION SIZE GROUPS FOR SELECTED INDUSTRY CLASSES



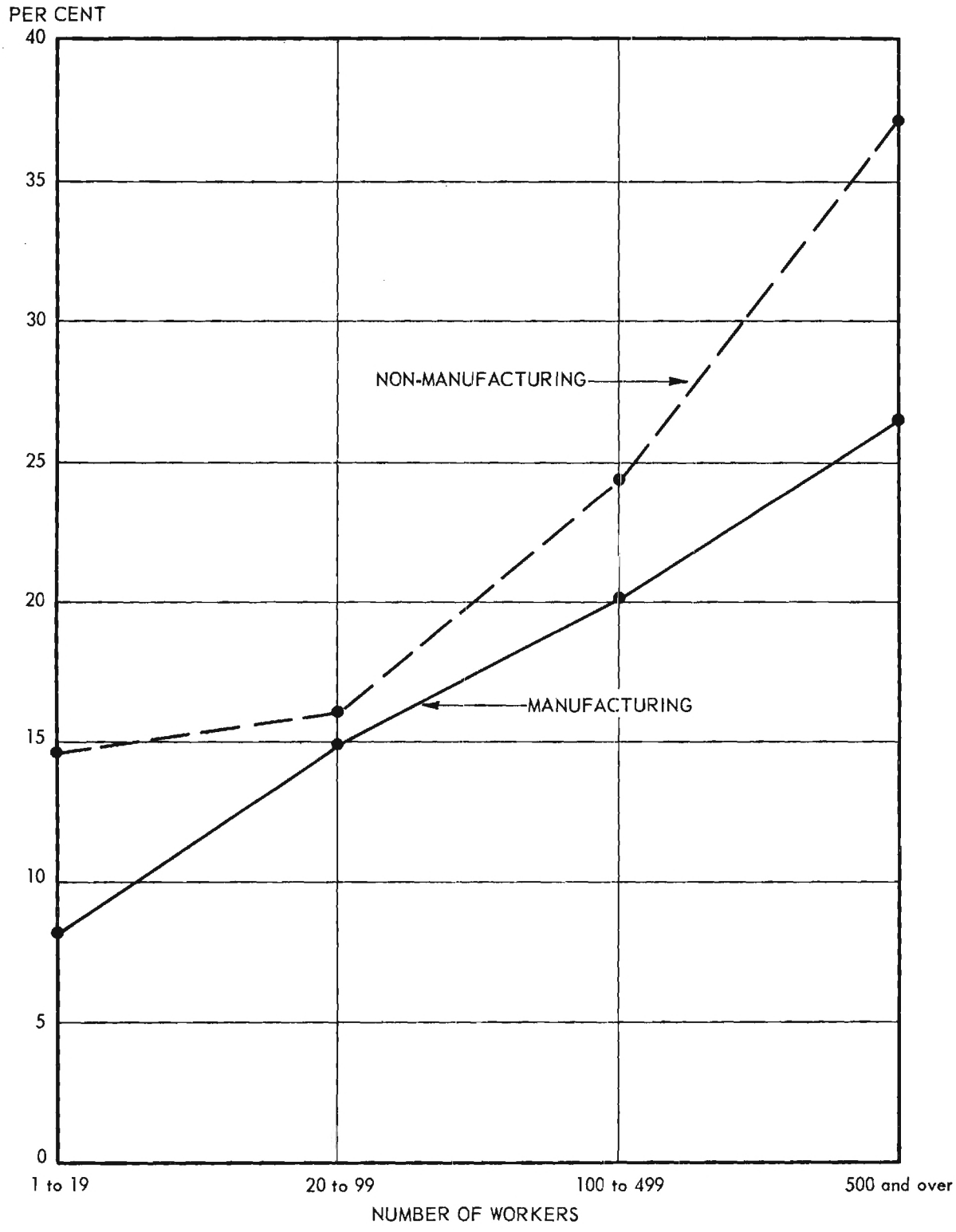
The effect of company size on commuting for all industries is as follows:

Size of Company	Per Cent Commuters
1 to 19 workers	13.7
20 to 99 workers	15.7
100 to 499 workers	21.6
500 & over workers	29.0

This tabulation shows that the largest firms for all classes of industries have 2.2 times the commuting of the smallest. Based on the distribution of Georgia's employment by company size, it is estimated that firms of 100 and over workers have 65 per cent of the State's commuting and firms of 20 to 99 workers 20 per cent. The two size classes together account for 20 per cent of the State's establishments. They explain 85 per cent of all of Georgia's commuting. Since such a high proportion of commuting is associated with the medium and large size firms, time and costs on studies of this sort could be materially reduced if only the firms of 20 or over workers were surveyed. The small firms could be reflected in the estimates by a ratio adjustment.

CHART 7

EFFECT OF SIZE OF ESTABLISHMENT ON PERCENTAGE OF WORKERS COMMUTING



PERSONAL FACTORS IN COMMUTING

Our estimates show that 177,000 Georgians commute to jobs in a county which is different from the county in which they reside. Over 16,000 non-Georgians also find jobs in the State by this process. The majority commute daily. Many drive an hour or more in each direction from a distance of 60 miles or further. All eat an early breakfast, or wait until arrival for breakfast. It must be obvious that both great strain and a considerable expense in involved. Many riders in carpools pay at least five dollars per week. Those who drive alone must make an outlay in excess of five dollars several times over. There are those who must sleep enroute. A variety of situations and conditions determine commuting.

In order to get more adequate information on individual commuters personal-type questionnaires were mailed to several companies. Eighty of these questionnaires were returned. In the pages which follow we give extracts from a few of these questionnaires. In the appendix is a large number of extracts which correspond with numbers plotted in Chart 8.

Our first case concerns a woman clerical worker who stopped work at about age 60 to marry but had to resume work again in a couple of years because of death of her husband.

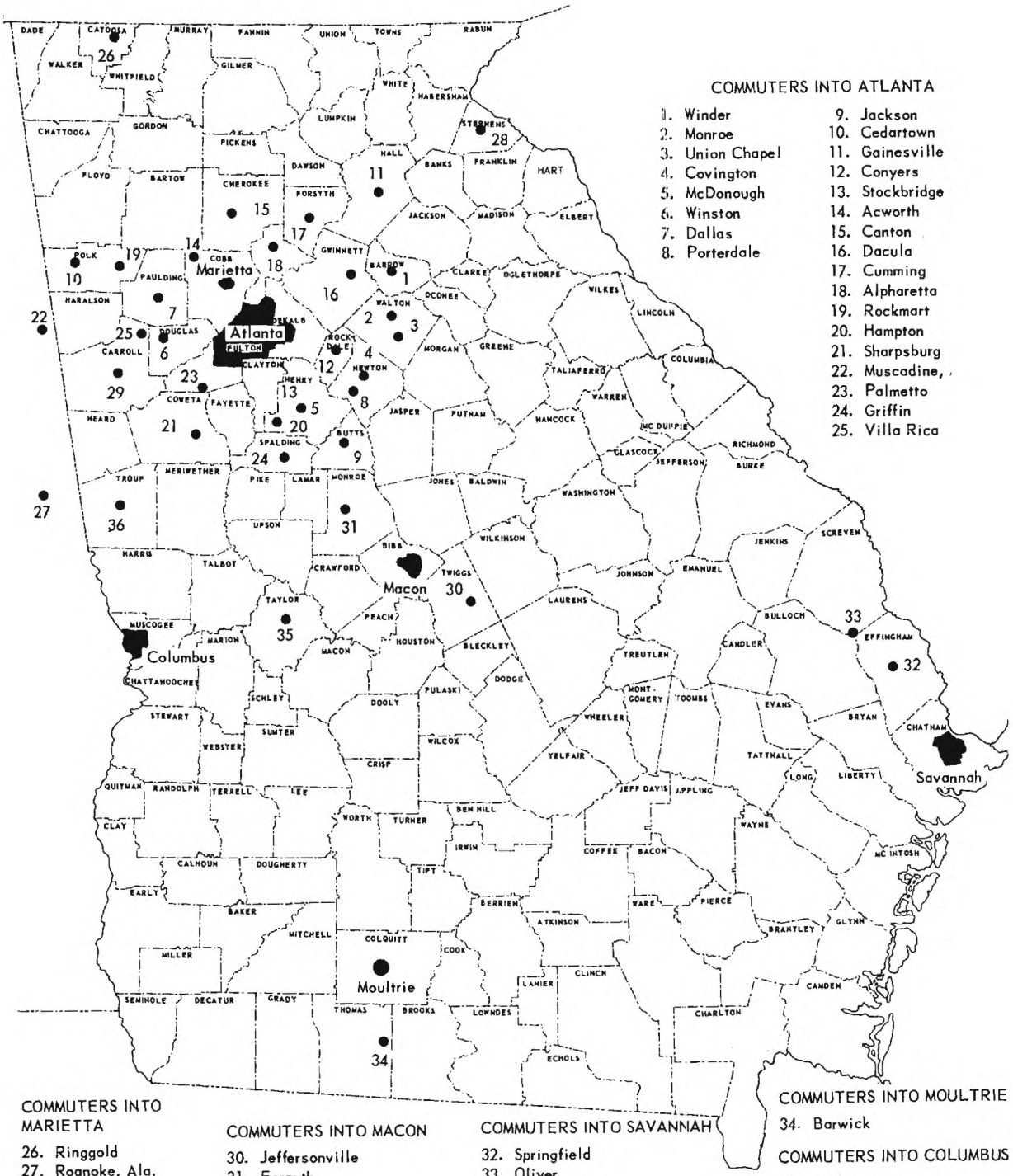
> She commutes by bus a distance of 48 miles. She must leave too early to eat breakfast at home and finds it necessary to sleep on the bus. Bus requires 90 minutes in each direction. She could join a carpool from Winder, as there are eight carpools coming to Atlanta daily, but she prefers the bus which she finds more restful. She is considering moving to Atlanta. (No. 1.)

Many have irregular hours and must leave home in the early morning or late at night. An example of the former is a young worker, 24 years old, with a trucking firm who drives 65 miles each way from Muscadine, Alabama.

> He commutes in his auto alone, spending from 75 to 90 minutes enroute. Has unusual hours and leaves home at 12:45 a.m. Begins return trip at 11:00 a.m. and is thus away from home over 11 hours going and coming from job and at work. Believes commuting from home is cheaper than living in Atlanta. (No. 22.)

CHART 8

MAP LOCATION OF SOME INDIVIDUAL COMMUTERS INTO LARGE CITIES OF GEORGIA



COMMUTERS INTO ATLANTA

1. Winder
2. Monroe
3. Union Chapel
4. Covington
5. McDonough
6. Winston
7. Dallas
8. Porterdale
9. Jackson
10. Cedartown
11. Gainesville
12. Conyers
13. Stockbridge
14. Acworth
15. Canton
16. Dacula
17. Cumming
18. Alpharetta
19. Rockmart
20. Hampton
21. Sharpsburg
22. Muscadine,
23. Palmetto
24. Griffin
25. Villa Rica

COMMUTERS INTO MARIETTA

26. Ringgold
27. Roanoke, Ala.
28. Toccoa
29. Carrollton

COMMUTERS INTO MACON

30. Jeffersonville
31. Forsyth

COMMUTERS INTO SAVANNAH

32. Springfield
33. Oliver

COMMUTERS INTO MOULTRIE

34. Barwick

COMMUTERS INTO COLUMBUS

35. Butler
36. LaGrange

Another example of an Alabamian driving a long distance is a skilled male worker, with a large manufacturing plant in the Atlanta area.

> He commutes in a carpool of five each day. Driving time is approximately two hours in each direction. Eats breakfast and leaves home for work at 4:30 a.m. and returns home at 5:50 p.m. Has been commuting for nearly five years. Often sleeps during trip. The respondent owns home and small farm. Believes it is cheaper to commute, paying $7.50 weekly, than to live in high rent area. Spends practically none of salary at place of work. (No. 28.)

Some are considering moving to Atlanta; others have moved from Atlanta recently. The following cases concern women workers who illustrate both points. One is a single woman, the other is married and drives with her husband. Practically all commuters on whom we have a personal interest story spend a high proportion of their salaries in the city of work. It is to be noted that both of the following spend most of their income where employed.

> Young lady, 19 years old, shares a carpool with two other persons, and has been commuting from McDonough, 38 miles from Atlanta, for about 10 months when she first got her job in Atlanta. Members of pool alternate in furnishing automobile. About 75 minutes are required to drive distance either direction, which she finds tiresome. She is seriously considering moving to Atlanta to be near work because it would be more convenient and less expensive. Spends 95 per cent of her salary in Atlanta. Shops at lunch hour sometimes but returns for week-end shopping. Spends such a high percentage because she buys clothing for herself and brothers. (No. 5.)

> Woman clerical worker, age 43, and husband, who has job also, drive own automobile to Atlanta each day from Winston, distance 30 miles, because bus schedule is inconvenient and would require an additional 30 minutes. Picks up four riders who assemble at Whitesburg. Leaves home at 6:15 a.m., and departs from Atlanta at 5:15 p.m., driving time in each direction is about one hour. About year ago moved from Atlanta to escape noise. Spends three-fourths of salary in Atlanta. Comes to Atlanta on Saturday generally in connection with contract work for handicapped people. Does shopping while in Atlanta. (No. 6.)

To the question as to why they prefer commuting to work from a considerable distance, a variety of answers were encountered. Some prefer a small town, have family connections, and find it cheaper to live in a rural community or country town. This story on a painter illustrates several of these points.

> He is 48 years old, on an irregular work schedule. He drives from Monroe 43 miles, with a crippled friend. Works regularly on Monday, Tuesday, and Wednesday. The other two days often include Saturday and Sunday, which are required to paint offices. Requires 75 to 90 minutes to drive distance. Traffic is quite heavy on Mondays and Fridays between Stone Mountain and Atlanta. Finds this is quite tiresome particularly on way out. The larger traffic volume of these two days is due to people returning home on week-ends from a job in Atlanta, and others leaving Atlanta for the week-end. This job in Atlanta is very important; could not pay rent of $75 on house without it. Estimates that at least 200 commute from Walton County to Atlanta for jobs. Seventy-five of these are Negros. Some of friends have been commuting for 10 years to Lockheed, taking route by Tucker. Likes country too well to move to big city. (No. 2.)

Some continue to live at a great distance from work because husband's job is in hometown, or concern for welfare of parents, or there is a pathetic case of illness. We have an example of the latter in a male worker.

> He is 38, with a technical job; commutes on week-ends in own automobile. During week he rooms in Atlanta Y.M.C.A. for four nights. Despite living costs, earns considerably higher wages than on job in home town. Invalid parent requires his attention at home over the week-ends. Will probably move to Atlanta when parent passes on. (No. 27.)

These are some of the human interest stories of persons who illustrate on the one hand some of the discomforts, the costs, and the hazards; and on the other hand the personal characteristics of commuters and their reasons for commuting.

While a variety of specific motives govern the great cross section of commuters who experience the strain and grind each day of earning a livelihood by working at a considerable distance from home, the dominant motive is economic--the need for any job at all, and in some cases for a better paying job.

But unlike migrants these people have never pulled up roots and established new ones in a distant location. They remain in the home community. Often for economic reasons, for instance, to pay for a home, but more generally there are more intimate personal reasons. They just like the home community; there is a favorite church or club; a husband has an important job which cannot be compromised, or there is a human and protective concern for parents or other relatives--sometimes with the compelling necessity to take care of an ill parent.

The above analysis considers only a limited number of case studies of commuters. Statistical analysis of the 69 reports received for the Atlanta area gives composite characteristics of the average commuter into this great southern city.

The average commuter to Fulton and DeKalb counties is 32 years old, drives 33 miles in each direction during approximately one hour, and has been commuting to work for about 5 years. About half drive in own auto and half of these come to work alone. This means that roughly one fourth of the commuters drive to work alone.

Over forty per cent reported being in a straight carpool arrangement in which there is sometimes alternation in the use of the automobile. The number of riders varied from three to nine and averaged five, a large number coming by station wagon. The median cost of riding in a carpool is five dollars per week, and the average is just sixty-nine cents more. Those who ride in a privately owned automobile also pay five dollars weekly.

As expected, the time of departure at both ends of the job is quite irregular. The time of departure from home varied from 12:45 a.m. in early morning to 2:00 p.m. in the afternoon. Departure from the job for home varied from 11:00 a.m. in the day to 1:45 a.m. at night. One man from Alabama working in an auto assembly plant spends three hours on the road in addition to eight hours on the job. But in general the average commuting time is one hour in each direction.

The average commuter does considerable shopping in Atlanta, making purchases of clothing, furniture, and other durables. Some few also purchase groceries in Atlanta. The proportion of salaries spent in city of work varied from nothing to 100 per cent but averaged approximately 40 per cent for those reporting, which were most of the commuters surveyed.

The types of workers represented are quite varied but the clerical class accounted for about 60 per cent. Only two reports were from unskilled workers; nine were from skilled worker categories. These two classes accounted for 15 per cent of the workers. The balance of the commuters, or 25 per cent, were in the supervisory or junior management classes. No reports were received for executive management.

About a third have considered moving to the city of employment to avoid the wear and tear of long distance commuting, only four of whom are planning to make this move now. This number is more than offset, however, by five workers who have moved recently from the place of employment. The points made on the average for a small town relative to a large city are: 17 like a small town, 5 don't want to live in a large city, 2 have husbands working in local town, 10 own homes, 3 live with parents, and 2 live on a farm.

Analysis of the answers given to the questions on advantages and disadvantages of commuting to work show the following results:

Advantages of Commuting		Disadvantages of Commuting	
Faster, more convenient	16	Time consuming	10
Cheaper	8	Expensive	8
Permits small town residence	7	Inconvenient, traffic, etc.	7
Home every night	2	Dangerous	3
Other reasons	8	Other reasons	8

The conclusion is that the two most frequently listed advantages and disadvantages are given on both sides. Some parties consider commuting faster and more convenient while others consider it more time consuming. Those who consider it cheaper are exactly offset by those who consider it more expensive. A check on original reports indicates that those who give cost as a disadvantage were either those who drive own car alone, or those who were making the comparison with a bus. The differences in points of convenience and time required are not clearly defined between the two classes of workers. If there is not a good road network or if traffic congestion is great, time consumed may be considered a disadvantage even though there may be no opportunity to go by bus. Some commuters, particularly women clerical workers, who thought it was time consuming were perhaps making the comparison with residence in

city of employment. Others riding in a carpool, even though no alternative transportation was available, apparently were thinking of the time required to assemble the carpool, or of waiting for other riders. Some who considered it faster and more convenient appeared to be making comparison with bus travel. Others thought they could drive in on the expressway even from some distance faster than from the suburbs. Therefore, the speed of travel by commuters' carpool, or otherwise, can be considered an advantage or disadvantage depending upon the commuter's point of view.

In conclusion, this analysis of personal stories of individual commuters has provided a comprehensive cross section on the numerous characteristics of persons and the variety of circumstances under which commuting occurs. The basic reason for commuting is the compelling need for jobs. It appears that commuters continue to accept the wear-and-tear of two hours on the road each day from working at a distant point because of firm attachment to a "way-of-life" found only in rural communities and small towns.

Respectfully submitted:

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Approved:

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APPENDIX A

EXTRACTS FROM REPORTS ON COMMUTING BY INDIVIDUALS

ATLANTA COMMUTERS

3. Union Chapel 55 Miles

Five young men in early 20's commute daily from Union Chapel, picking up another worker from Loganville. All hold clerical, elevator, or other minor jobs. Have been working in State government office for a period varying from eight months to over two years. Carpool leaves Union Chapel at 5:30 a.m. daily, time of travel each way is one and one-half hours. Traffic is bothersome only on way home for a few miles beyond Decatur. Some riders sleep occasionally both coming to Atlanta and returning to Union Chapel.

In response to question about living in Atlanta, the spokesman indicated that all preferred living in a small town. He had tried living in Atlanta and found he did not like it. "One gets accustomed to commuting after a while and travel does not affect one much."

4. Covington 32 Miles

Worker at managerial level, age 36, and his wife commute daily in own automobile to job in State office. Requires about one hour each direction. As a rule traffic congestion is not a problem--comes via Memorial Drive. About one and a half years ago moved from Atlanta to acquire rural property. Disadvantages of driving to work from a distance are offset by more satisfactory living conditions and surroundings.

7. Dallas 35 Miles

Woman clerical worker, age 49, shares a carpool. Riders alternate by weeks in supplying the automobile. She has been commuting for over 20 years and finds this form of transportation quite satisfactory. Sleeps sometimes enroute. Automobile leaves Dallas, where carpool forms, at 6:45 a.m. Travel time is about one hour coming and about one hour and ten minutes returning. Has never considered moving to Atlanta because she values family ties at home and enjoys living in a small town.

Spends three-fourths of salary in Atlanta. Buys groceries and does shopping on lunch hour.

8. Porterdale 40 Miles

Young woman clerical worker, age 21, commutes in a carpool with six riders. One person drives all the time; riders pay $5.00 weekly. Leaves home at 6:45 a.m. and departs from Atlanta in evening at 4:45 p.m.; driving time is 55 minutes.

Has considered moving to Atlanta but even though she has been commuting for nearly three years prefers home town. "It is a small town, and most of my friends are there, and also church and clubs."

9. Jackson 45 Miles

Young woman clerical worker, age 20, has been riding to job in Atlanta in a carpool of five persons for about one year. One person furnishes car and others pay $5.00 weekly. Leaves home at 6:30 a.m. and departs from Atlanta at 5:00 p.m.; driving time in each direction is one hour and fifteen minutes. Has found no harmful effects from commuting. Limited income prohibits living in Atlanta at this time.

10. Cedartown 70 Miles

Young man, unskilled worker in meat packing plant, about 30 years old, commutes alone five days weekly to Atlanta in personally owned automobile. Leaves home about 5:45 a.m. and returns about 5:45 p.m.; driving time about 90 minutes each direction. Chief objection to commuting is time consumed, but while commuter has considered moving to Atlanta, family prefers a small town.

11. Gainesville 50 Miles

Skilled worker, about 26 years old, commutes alone five days weekly to work in meat packing plant in Atlanta. Spends 80 to 90 minutes enroute in each direction. Has been commuting for six years, costs about $12.00 weekly. Finds that driving time and traffic are chief disadvantages; plans to move to Atlanta in near future.

12. Conyers 25 Miles

Clerical worker, about 39 years old, commutes in a carpool to job with oil company with four to five workers. Driving time varies about 45 minutes to one hour, the return trip taking longer because of traffic congestion. Finds that this method of getting to work is cheaper, provides door-to-door transportation, and affords good company enroute. Has not considered moving to Atlanta because knows taxes will be higher, commuting time about same as from suburbs, and prefers living in small town. Seventy-five per cent of salary is spent in Atlanta as all purchases are made there except groceries.

13. Stockbridge 22 Miles

Clerical worker, age 30, has been commuting ten years in own auto. Driving time requires 45 minutes in each direction. Transports five riders, three of whom are family members. Has not considered moving to Atlanta to live because prefers small town as a place of residence.

14. Acworth 32 Miles

Male clerical worker, 25 years old, has been commuting to job with oil company in a carpool of two persons for about one year. Driving time is one hour in each direction. Work schedule in town varies; on Mondays, Wednesdays, and Fridays, does not arrive home until 9:00 p.m. Although states that costs more to commute than by bus, prefers free choice of travel by automobile. Has not considered living in Atlanta because likes being in home town.

15. Canton 38 Miles

Woman clerical worker, 30 years old, has been commuting to job with oil company for over three years in own auto with five riders, two of whom are members of her family. Has not considered moving to Atlanta because duties of husband with National Guard unit in Canton require that he live there.

16. Dacula 36 Miles

Young woman, clerical worker, age 17, commutes in a carpool of seven. Driving time in each direction is about one hour.

17. Cumming 30 Miles

Woman worker in food manufacturing, holding a skilled job, age 32, commutes in a carpool of six. The driving time is 45 minutes to job and about one hour returning from work. She does most of her shopping in Atlanta.

18. Alpharetta 34 Miles

Male worker with transportation firm drives to work alone. He is 34 years old and has been commuting for 12 years. Commuting time varies between one hour and a quarter driving to work and one hour and a half returning home. Likes to live in a small town but finds that traffic congestion to Atlanta is a disadvantage. Has considered moving to Atlanta, but has reached a firm decision against the move in view of his great preference for living in country and a small community. Spends about 60 per cent of his salary in Atlanta for groceries, household appliances, and clothing.

19. Rockmart 56 Miles

Young woman working in bank, has been commuting with another worker, owner of automobile, since finding work in Atlanta a short time ago. Driving time is 70 minutes coming to Atlanta and 90 minutes returning to Rockmart. Thinks that this method of getting to work is cheaper and more restful than by bus. Has considered moving to Atlanta but thinks she will be more satisfied in a small town where it is cheaper to live.

20. Hampton 32 Miles

Woman clerical worker in bank, 21 years old, rides in a carpool of nine workers. Driving time in each direction is about 45 minutes. She finds that it is troublesome to have someone to meet her when she must work late. She, however, likes this method of getting to work because she gets home sooner. Owns home in Hampton which her family enjoys. Believes commuting time is actually no more than most Atlantians spend getting to work from the suburbs.

21. Sharpsburg 36 Miles

Male clerical worker in communication work, drives own auto with two riders one of whom is member of his family. Driving time is about one hour in either direction. Moved from Atlanta three years ago to live in a small town but realizes that commuting is time consuming. Spends about 40 per cent of salary in Atlanta for clothing, furniture, laundry, dry cleaning and meals.

23. Palmetto 30 Miles

Young man, 29 years old, who is salesman with food beverage company, has been commuting for nearly four years in a carpool of six persons. Driving time is 60 to 70 minutes. Resides with parents and has not considered living in Atlanta. Finds that chief advantage of commuting is comparatively small expense by auto but distance is time consuming. Spends 30 per cent of salary in Atlanta on clothes and miscellaneous items.

24. Griffin 43 Miles

Young man, 30 years old, manager of auto finance company, has commuted in own auto with one rider at intervals for several years. Driving time is 50 to 60 minutes. Has tried living in Atlanta on two occasions since 1953, but prefers small town like Griffin where he has a large number of friends, and is better able to take part in civic activities.

25. Villa Rica 38 Miles

Male worker, age 44, doing skilled work with auto company, has been commuting 12 years in own automobile without riders. Driving time in either direction is 45 to 50 minutes. Prefers this method of getting to work over public transportation which has greater inflexibility of schedules and more roundabout route to his employment. Has not considered moving to place of work because immediate family and other relatives live near Villa Rica. Since home is paid for, cost of living is more reasonable than it would be at place of work. Spends about 50 per cent of salary in Atlanta for major items of purchase; most basic daily living necessities are purchased at place of residence.

MARIETTA COMMUTERS

26. Ringgold 89 Miles

Young man, age 26, doing skilled work, has been commuting about five years in own automobile with three riders. Driving time varies from two and one quarter to two and one-half hours. Finds traffic light in morning at four o'clock when he leaves for work, but is heavy in the afternoon, particularly after five-thirty. A big factor against moving to place of work is that he owns home at place of residence.

29. Carrollton 55 Miles

Woman employee, doing clerical work, 29 years old, has been commuting for nearly two years. Drives own car 17 miles to Villa Rica at which point joins a carpool of six. Driving time is about 85 minutes. Pays $5.00 per week to ride in carpool. Does not find any particular disadvantage to this method of traveling to work, though fact husband operates business near Carollton is big factor. During the ride is able to listen to radio, read newspaper, and crochet.

MACON COMMUTERS

30. Jeffersonville 23 Miles

Male worker in textile plant, age 23, in managerial position, commutes in an automobile owned by another person. The driving time in either direction is about 30 minutes. In assessing the efficiency of this method of getting to work, the respondent admitted that it is more costly but that living conditions in a small town are cheaper. Spends about three-fourths of his income in Macon because he considers it more economical to trade in a large town than a small one.

31. Forsyth 25 Miles

Young woman stenographer in textile manufacturing company commutes in her automobile with one other person. Driving time is about 30 minutes each direction. She finds that driving own car to work is more convenient although costs are greater than riding with someone else. Her husband works in Forsyth and she does not consider it practical to move to Macon, the place of work, to live.

SAVANNAH COMMUTERS

32. Springfield 40 Miles

Male worker, 37 years of age, employed in a baking company in a skilled job, commutes in a carpool of two persons five days a week. He has traveled to work in this manner for the last ten years. The driving time in each direction is one hour. He considers it cheaper to travel in a carpool and has not considered moving to Savannah because he owns a home in Springfield.

33. Oliver 50 Miles

Male worker, age 38, skilled, commutes in a carpool of three workers daily which involves driving distance of one hour in each direction. This man owns a farm and continues to supervise its operations and therefore would not consider moving to Savannah. About 75 per cent of his salary is spent in Savannah to take care of groceries, car payments, insurance, and various other types of credit accounts.

MOULTRIE COMMUTER

34. Barwick 25 Miles

Male worker, age 36, in managerial position, commutes five days a week in own automobile with two other riders. He has been commuting to this job with a packing plant for about five years. He finds no disadvantages to this method of getting to work because traffic is light, he enjoys the ride, and prefers living in a small town.

35. Butler 60 Miles

Male worker in construction work, age 40 and having supervisor's job, has been commuting in own truck with 20 riders for over three years. Driving time is two hours in either direction. Pay from riders as commuters on one advantage of this method of getting to work. Shifting character of construction work and long hours required for commuting are disadvantages.

36. LaGrange 50 Miles

Male worker, age 51, having job as carpenter with construction company commutes five days a week alone in own automobile. He leaves home at 5:30 a.m. and returns at 6:00 p.m., driving time in each direction is one and a half hours.

APPENDIX B

METHODOLOGY

The method of procedure employed in this report, in general, was that of sample selection by random methods from a finite universe. The known universe consisted of three parts but was represented mainly by the firms covered under the employment security program and reported to the Georgia Department of Labor during the first quarter of 1957. This group included approximately 27,700 firms representing about 700,000 employees. Two other smaller segments of employers were considered. One of these categories was all noncovered firms of 100 workers or over, mainly governmental units, whose addresses could be located. Another was the large out-of-state industrial firms which might employ workers from Georgia. Samples were selected from the ES-202[1/] firms, including Federal government establishments, by conventional statistical methods. The results were inflated, depending upon the sample response obtained. Data on other categories were treated similarly where the sampling response and data on the universe were sufficient to justify application of inflation ratios.

The mailed survey was employed to secure data from the approximately 7,600 firms or institutions in the sample. The response was phenomenal--47 per cent of all firms returned the questionnaire in response to the first mailing of letters and forms. The follow-up letter, which was mailed about two weeks later and which was supported by telephone and personal calls to the larger firms, produced another 23 per cent. The overall response was therefore 70 per cent of the sample firms. The ratio of total employment represented was almost as high, or 62.8 per cent.

Data on county of residence are dated as of the day on which the questionnaire was completed. The date of the reports was therefore for the period from December 1957 to March 1958. But all results were inflated to the March 1957 employment level.

Sample Selection

For the March, 1957 employment security reports, the sampling ratios were those specified by the Bureau of Employment Security in its standard plan for survey of commuting to determine the 1960 definition for standard metropolitan areas. Their sampling specifications[2/] are as follows:

Size of Firm	Sample Percentage
1 to 19 workers	4
20 to 99 workers	20
100 and over workers	100

1/ Refers to Employment Security cards summarizing employment for each firm and tabulated each quarter for reports to the Bureau of Employment Security, U. S. Department of Labor, on Form ES-202.

2/ "Handbook on Labor Market Research Methods: Defining Labor Market Areas," March 20, 1957, U. S. Department of Labor, Bureau of Employment Security, Office of Program Review and Analysis, pp. 4-7.

These ratios are used as rough guides only, as they were modified to fit local situations where the nature of the universe indicated the need for a higher sampling ratio of the medium and small-size firms. The necessity for modification of the sampling ratio to gain greater coverage of the universe was dictated by two factors. First the large number of counties in Georgia with relatively small employment, and second, by the need for tabulation against nine industry classes and three firm sizes in many counties. In the majority of small counties a low rate of employment appeared too limited for tabulation to any size classes in either the manufacturing or nonmanufacturing categories. Therefore, in recognition of their problems, the sampling ratio was made 100 per cent in firm size 20 to 99 workers and 100 workers and over for all counties outside the Atlanta area. For size class 1 to 19 workers the sampling ratio varied from five per cent to 100 per cent, depending upon the number of cases in the universe. The selections were made randomly from lists of companies for each county, arranged by industry classes and then in sequence by serial numbers. Systematic sampling procedures were employed. A starting point was determined by random numbers, with selections being made from that point in sequence according to the sampling ratio. This method, it is noted, applies primarily to the small firms since 100 per cent selection was made for the other two size groups. These are the two size classes where the commuting is concentrated primarily.

The following tabulation shows the relationships of the sample selected to the universe by size of firms.

Size of Firm	March Employment		
	Universe	Sample Selected	Per Cent
1 to 19 workers	159,742	25,390	15.9
20 to 99 workers	181,324	134,728	74.3
100 and over workers	361,523	361,523	100.0
All sizes	702,589	521,641	74.2

For the state as a whole it is seen that the sample selected varied from 15.9 per cent for the firms employing 1 to 19 workers to 100 per cent for the larger firms. These results are based on the ES-202 cards which represent the firms reporting under the Georgia Department of Labor's job-insurance program. In addition reports from 251 noncovered firms representing almost 122,000 workers were obtained. The addresses of these firms were obtained from various sources, but mainly from the Georgia Department of Labor's local offices. They include workers in Federal and State government agencies, and nonprofit institutions, such as hospitals and educational institutions. As a general rule, the solicitation was confined to firms or institutions employing 100 workers or over. Seventy-six of these firms and 32 per cent of the employment were reported for the Atlanta area.

To cover commuting of Georgia workers to other states, 55 questionnaires were mailed to companies opposite several large Georgia population centers, such as Valdosta, Columbus, LaGrange, Rome, Augusta, and Savannah. Nineteen of these questionnaires went to large firms in Chattanooga which were thought likely to attract workers from the nearby rural counties in Georgia. Sixty-four per cent of all firms surveyed reported. The total employment in all the firms surveyed was 44,319, of which the sample response was 82.5 per cent.

Sample Response

The Chamber of Commerce, newspapers, and others in various parts of the State gave widespread support through publicity and otherwise. Furthermore, because of the nature of the problem the survey gained interest and widespread support from the business firms of the State. This is shown by the fact that the first mailing of the questionnaire November 22, 1957, obtained 47 per cent positive response from all firms in the sample. Through an intensive follow-up by letter, telephone, and personal calls, this ratio was raised to 70 per cent by March 1, the closing date of the reports. The sample response varied somewhat by size of firms as the following tabulation shows:

Size of of Firm	Total Employment Represented in Sample Selected	Total Employment Represented in Sample Obtained	Per Cent of Sample Selected that was Obtained
1 to 19 workers	25,390	17,576	69.2
20 to 99 workers	134,728	89,965	66.8
100 workers and over	361,523	333,893	92.4
All sizes	521,641	441,434	84.6

The response was substantially better among the large firms because telephone calls and other means of communication were concentrated on them. It was felt that they accounted for the bulk of the commuting, which the survey confirms.

The returns to the sample in the two smaller groups, however, were very good. The response to the smallest size group, 1 to 19 workers, was somewhat higher than the medium-size firms, those with 20 to 99 workers. This is believed due to the nature of the request which was quite simple for a firm with a few workers to complete. Another factor is that follow-up was less heavily concentrated on the firms with 20 to 99 workers than those with over 100 workers.

Analysis of Sampling Ratios

The accuracy of a study of this sort depends greatly upon the relationship of the size of the response to the universe. In terms of insured employment, as shown by the ES-202 cards, the sampling ratio appears very good.

For the State as a whole, it averaged nearly 63 per cent of total employment. This means that the report is based on two out of three workers. How the sampling ratios vary by size of firms is shown by the tabulation below:

Size of Firm	Employment Reported at Date of Sample		
	Universe	Sample Obtained	Per Cent of Universe
1 to 19 workers	159,742	17,576	11.0
20 to 99 workers	181,324	89,965	49.6
100 workers and over	361,523	333,893	92.4
All sizes	702,589	441,434	62.8

The data show that the sampling percentage covers just over one-tenth of all workers in size class 1 to 19 workers, nearly 50 per cent in size class 20 to 99 workers, and 92 per cent of the workers in firms employing 100 workers or more.

Method of Sample Inflation

The number of persons commuting in the sample was inflated to the universe by multiplying by the reciprocal of the sample ratio. The sample ratio of the county of work was applied to all commuters shown for all residential counties reported. Reports on commuting of noncovered[3/] firms were added to the universe value.

We illustrate the method of inflation of sample data on commuting below for a greatly simplified problem:

(a)	ES-202 employment (county of work)	10,000
(b)	Inflation ratio is 1.00 ÷ 0.63 (sample ratio)	=1.5873
(c)	Commuting data	
	(1) County A =	1,000
	(2) County B =	500
(d)	Total employment	
	(1) ES-202 employment (county of work)	10,000
	(2) Noncovered employment	2,000
	(3) Total employment	12,000

3/ Noncovered firms are outside the employment insurance program. They are, therefore, not part of the lists supplied by the Georgia Department of Labor, and include such employees as Federal and State governments, private educational institutions, and hospitals.

(e) Commuting data:

	ES-202 Employment		Noncovered Employment	Total Adjusted Employment
	Sample	Inflated		
Workers resident in home county	4,800	7,619	1,600	9,219
County A	1,000	1,587	300	1,887
County B	500	794	100	894
Total in sample	6,300	---	---	---
Sample ratio	63%	---	---	---
Multiplier	1.5873	---	---	---
Total employment (inflated)	---	10,000	---	---
Inflated ES-202 and noncovered	---	---	---	12,000

The procedure described above is oversimplified. In the actual analysis inflators were applied to six industry classes and three size groups, or 18 cells altogether. The six largest counties required this procedure. They are Fulton and DeKalb, Bibb, Chatham, Muscogee, and Richmond. In the other 153 counties the method of inflation depended upon the number of cases obtained from the survey. Industry groups and sizes of firms were combined in such a way as to have an error of estimate of 10 per cent or less. The error of estimate for the larger counties varied from 2 per cent to 6 per cent. For 53 of the larger counties data were sufficient to inflate manufacturing and nonmanufacturing separately with some inflation also by size groups. Another 44 counties provided sufficient information to permit estimation of commuting only on the basis of all industrial classes and size groups combined. The other 56 counties had insufficient reports to permit separate estimates. The counties not estimated are as follows:

Bacon	Dooly	Lee	Schley
Baker	Echols	Liberty	Seminole
Banks	Effingham	Lincoln	Stewart
Brantley	Fannin	Long	Taliaferro
Bryan	Fayette	Lumpkin	Taylor
Calhoun	Glascock	Madison	Towns
Catoosa	Hancock	Marion	Treutlen
Charlton	Harris	McIntosh	Turner
Chattachoochee	Heard	Miller	Twiggs
Clay	Irwin	Oconee	Union
Clinch	Jasper	Oglethorpe	Warren
Crawford	Johnson	Pike	Webster
Dade	Jones	Quitman	Wheeler
Dawson	Lanier	Randolph	Wilcox

Reliability of the Estimates

There are three main problems which affect the accuracy of the results. Commuting as used in this report includes workers who commute to a job across county or state lines daily, weekly, or at irregular intervals.[4/] It would have been preferable to have confined the analysis to daily commuters only but it was impossible to obtain this separation with limited resources. Secondly, it is known that there is a lag up to a year in correction of addresses of workers on the payroll and W-2 forms.[5/] This would tend to cause an overestimate. It is believed, however, this is largely compensated by two factors, frequent moves of workers and the tendency of older workers to shift jobs, thus remaining commuters. Parnes[6/] in his studies of commuting in the Columbus, Ohio area, found that job shopping is more characteristic of workers with some work experience than of youngsters just entering the labor market.

A third factor is the coverage of the entire working force in a given county. In this study the basic universe data included ES-202 reports (insured employment), and noncovered firms of 100 workers or over. In this latter category are included government agencies, railroads, schools and colleges, hospitals, and other service institutions. The firms not included are in two categories. First are the small companies with three workers or less who do not have to report under employment security. Second are some firms up to 100 workers not in the employment security program. It is believed that neither category involves commuting to any significant extent because of the size of the companies and the fact that trade and service types of occupations are involved mainly. Commuting is confined apparently very largely to the big companies, and particularly those with prestige and high wage levels. In fact, it has been shown in the text that about 80,000[7/] or nearly 45 per cent of all commuters are associated with 186 large firms. The inflation procedures in this study reflected accurately the size of firms where number of reports were sufficient to justify this result. In the smaller counties number of reports were too few to justify this procedure. Inflation was on the basis of all reports considered compositely irrespective of size of firm or industry type. For the big centers it would appear that the procedure may give a small underestimate due to the inability to reflect the small service types of companies. Yet due to the biases discussed and the influence of size of firm on commuting, it is believed that the commuting rate obtained from the procedure could not be validly applied to these service establishments. Study of influence of small firms on commuting shows that they probably would have little, if any, effect.

4/ Workers who maintain a domicile in a distant county and other commuters who retain a connection in a distant county even though returning home irregularly, that is, at intervals greater than a week.

5/ In order to remedy this difficulty, it was suggested that companies make a survey to provide fully current information on county of residence of workers.

6/ Hubert S. Parnes, op. cit., p. 161.

7/ Excluding commuting between Fulton and DeKalb counties.

In the case of the small counties where inflation of the sample was based on the composite of the reports, the heavier rate of the larger firms probably gives a small overestimate of commuting. This probably compensates for the relatively larger percentage of small firms in these counties.

It is seen, therefore, that the method of estimation of commuting tends to compensate for lags in keeping up-to-date company records on change in addresses, and also the incompleteness of coverage of the total labor force in any given county. They are further compensated by factors causing a rise in commuting, such as growth of suburbs, rising preference for country living, growth of expressways, etc.

A direct measure of the reliability of results can be gained by analysis of Census reports on residence of workers in 1950 against employment in manufacturing in the same counties. The 1950 manufacturing employment is based on ES-202 reports, inflated for small firms which were not included. The 1957 data are from the current survey of commuting. The percentages of commuting for the large cities are shown below for both years.

	Percentage of Total Manufacturing Workers Commuting	
	1950	1957
Atlanta	16.0	22.8
Augusta	7.5	15.7
Savannah	4.6	4.6
Columbus	33.5	32.0
Macon	4.2	7.7
Composite	15.7	20.3

Surprisingly, the largest commuting in manufacturing is found in Columbus. Several large firms in Columbus are important in attracting workers from Alabama. Atlanta is second highest and had a substantial increase from 1950 to 1957 due to a number of large, new plants in the area, particularly for aircraft and automobile assembly. The increases of Atlanta, Augusta, and Macon are expected and the overall increase for the five cities is in line with the trends previously explained. The conclusion, therefore, is that the test tends to verify the general reliability of the estimates. Sampling error analysis indicates that the standard error of the estimates probably varies between 2 and 6 per cent for the larger population centers and not over 10 per cent for other counties.

Problems Affecting the Study

There were at least three problems which affected tabulation and analysis of the results. First, definition of commuting was not clear. Common usage dictates "daily travel to work at a distant point." But week-end commuters, were reported particularly for distant points. They are not represented in

substantial numbers. However, for long distance commuting it appears that they constitute a higher percentage of the commuters, the greater the distance the more week-end commuters are represented. These are not tabulated separately but are included in the "all others" class which for the most part represents commuters too distant to drive to work daily. Second, a number of problems arose in connection with change of county of location of companies. There are two reasons. Because of the large number of firms, about 27,700, it is impossible to keep up closely with area changes. Even if such changes could be detected and recorded currently, the time lag from the latest quarter reports on ES-202 reports is at least six months. In the case of this study the ES-202 reports for insured employment represented March 1957 employment. Starting with a six-month lag due to tabulating schedule, by the time the study could be planned, questionnaires prepared, and mailed, about nine months had elapsed. Because of time lag in follow-up, many reports were 10 to 12 months behind the March 1957 employment. Therefore, in this 6 to 12 month lag, some companies would have started as new firms. Getting all these changes made in order to get the sample to correspond to the universe was a major problem of the study.

A third type of problem concerned multiunit operations. Many large companies maintain points of employment at several different locations in the state. Some report separately for each point; however, many firms submit one report which consolidates all employment points. Data had to be separated to show each employment point separately. The mistake was made of trying to retain the old multiunit numbering system for the additional cards under the same serial number. Even though the multiunit reports applied to different areas, they caused serious difficulties in the collation checks. The multiunit system of serial numbers with suffix "M" or "S" and the firms with single numbers which proved to have multiemployment points should have been identified independently of the single serial number.

Another problem in connection with the multiunit firms concerns multiindustry operations in the same county, such as manufacturing, wholesaling and retailing; also some companies often operate a number of branch plants in one county. Where this sort of reporting occurred it further complicated the cross checking procedures.

Serious difficulties were encountered with insurance companies and construction firms. The former generally have multiemployment points. Often a number of workers are assigned to a district office but really reside and work in another county. Commuting is not involved. The difficulty with these companies is that often one employment figure was given for the entire state, or if district offices were reported separately, the status of resident agents was not clear.

Construction firms pose a different set of problems. These companies generally move to another location when a contract is completed. Many of their workers make the move, retaining a residence address in some other state or distant community. Some other workers commute long distances for a period. From the standpoint of the accuracy of the study it is important to obtain reports on both types of workers and determine their residence status.

APPENDIX C

Statistical tables showing distribution of workers to county of residence, for period December 1957 to March 1958.

1. Six large population centers in order of size. Counties are arranged alphabetically by tiers.

County of work: FULTON-DeKALB

County of Residence	All Industries		Manufacturing	
	Number of Workers	Per Cent	Number of Workers	Per Cent
Fulton-DeKalb	234,938	85.7	51,098	77.5
Carroll	927	0.3	408	0.6
Cherokee	463	0.2	311	0.5
Clayton	7,454	2.7	2,436	3.7
Cobb	10,149	3.7	3,352	5.1
Coweta	449	0.2	146	0.2
Douglas	1,864	0.7	890	1.3
Fayette	614	0.2	239	0.4
Forsyth	462	0.2	309	0.5
Gwinnett	4,682	1.7	2,755	4.2
Henry	1,329	0.5	426	0.6
Rockdale	1,058	0.4	255	0.4
Barrow	251	0.1	193	0.3
Bartow	307	0.1	131	0.2
Butts	174	0.1	84	0.1
Hall	447	0.2	344	0.5
Haralson	120	---	67	0.1
Newton	954	0.3	312	0.5
Paulding	744	0.3	309	0.5
Spalding	525	0.2	213	0.3
Walton	494	0.2	312	0.5
Polk	494	0.2	256	0.4
All others	5,360	1.9	1,047	1.6
TOTAL	274,259	100.0	65,893	100.0

NOTE: Percentages will not necessarily add to 100 because of rounding.

County of work: CHATHAM

County of Residence	All Industries Number of Workers	All Industries Per Cent	Manufacturing Number of Workers	Manufacturing Per Cent
Chatham	43,935	93.0	14,026	90.0
Bryan	327	0.7	206	1.3
Bulloch	167	0.3	93	0.6
Effingham	932	2.0	688	4.4
Evans	25	---	23	0.1
Liberty	72	0.2	43	0.3
Screven	147	0.3	69	0.4
Long	25	---	6	---
South Carolina	645	1.4	181	1.2
Tattnall	37	0.1	19	0.1
All others	925	2.0	239	1.5
TOTAL	47,237	100.0	15,593	100.0

County of work: MUSCOGEE

County of Residence	All Industries Number of Workers	All Industries Per Cent	Manufacturing Number of Workers	Manufacturing Per Cent
Muscogee	28,909	76.1	11,239	68.0
Chattahoochee	76	0.2	38	0.2
Harris	589	1.6	403	2.4
Marion	62	0.2	31	0.2
Talbot	75	0.2	47	0.3
Meriwether	7	---	2	---
Schley	2	---	0	0.0
Stewart	82	0.2	11	0.1
Taylor	58	0.1	2	---
Troup	104	0.3	22	0.2
Webster	5	---	4	---
Alabama	7,526	19.8	4,619	28.0
All others	505	1.3	106	0.6
TOTAL	38,000	100.0	16,524	100.0

County of work: BIBB

County of Residence	All Industries Number of Workers	All Industries Per Cent	Manufacturing Number of Workers	Manufacturing Per Cent
Bibb	31,707	91.8	10,459	92.3
Crawford	83	0.2	44	0.4
Houston	311	0.9	121	1.1
Jones	371	1.1	151	1.3
Monroe	167	0.5	83	0.7
Peach	110	0.3	53	0.5
Twiggs	439	1.3	148	1.3
Baldwin	134	0.4	15	0.1
Bleckley	107	0.3	74	0.7
Jasper	21	0.1	2	---
Laurens	79	0.2	12	0.1
Pulaski	29	0.1	14	0.1
Putnam	28	0.1	8	0.1
Taylor	52	0.1	51	0.5
Wilkinson	87	0.2	46	0.4
All others	820	2.4	50	0.4
TOTAL	34,545	100.0	11,331	100.0

County of work: RICHMOND

County of Residence	All Industries Number of Workers	All Industries Per Cent	Manufacturing Number of Workers	Manufacturing Per Cent
Richmond	25,131	82.5	7,313	84.3
Burke	204	0.7	79	0.9
Columbia	1,263	4.1	330	3.8
Jefferson	186	0.6	14	0.2
McDuffie	297	1.0	19	0.2
Glascock	19	0.1	3	---
Lincoln	64	0.2	3	---
Warren	116	0.4	4	---
Wilkes	23	0.1	2	---
Oglethorpe	64	0.2	0	0.0
South Carolina	2,734	9.0	805	9.3
All others	358	1.2	98	1.1
TOTAL	30,459	100.0	8,670	100.0

County of work: DOUGHERTY

County of Residence	All Industries		Manufacturing	
	Number of Workers	Per Cent	Number of Workers	Per Cent
Dougherty	11,774	82.7	2,548	85.5
Baker	68	0.5	26	0.9
Calhoun	132	0.9	36	1.2
Lee	186	1.3	41	1.4
Mitchell	179	1.3	25	0.8
Terrell	156	1.1	55	1.8
Worth	464	3.3	153	5.1
Clay	32	0.2	0	0.0
Colquitt	291	2.0	72	2.4
Crisp	112	0.8	2	0.1
Decatur	19	0.1	0	0.0
Early	22	0.2	0	0.0
Randolph	56	0.4	1	---
Sumter	86	0.6	0	0.0
Tift	119	0.8	1	---
Turner	27	0.2	2	0.1
All others	515	3.6	17	0.6
TOTAL	14,238	100.0	2,979	100.0

Statistical tables showing distribution of workers to county of residence, for period December 1957 to March 1958.

2. Ninety-six counties for which data were sufficient to inflate the sample. The counties are arranged in alphabetical order.

County of work:	APPLING
County of Residence	Number of Workers
Appling	802
Bacon	15
Jeff Davis	4
Wayne	7
All others	19
TOTAL	847

County of work:	ATKINSON
County of Residence	Number of Workers
Atkinson	156
Berrien	2
All others	2
TOTAL	160

County of work:	BALDWIN
County of Residence	Number of Workers
Baldwin	4,640
Hancock	357
Jones	142
Putnam	92
Washington	22
Wilkinson	382
All others	62
TOTAL	5,697

County of work:	BARROW
County of Residence	Number of Workers
Barrow	2,326
Clarke	24
Gwinnett	72
Hall	25
Jackson	182
Oconee	151
Walton	52
All others	17
TOTAL	2,849

County of work:	BARTOW
County of Residence	Number of Workers
Bartow	3,955
Cherokee	1
Cobb	33
Floyd	42
Gordon	149
Paulding	35
Pickens	1
Polk	18
All others	38
TOTAL	4,272

County of work:	BEN HILL
County of Residence	Number of Workers
Ben Hill	1,591
Coffee	26
Dodge	10
Irwin	48
Telfair	11
Turner	20
Wilcox	17
All others	211
TOTAL	1,934

County of work:	BERRIEN
County of Residence	Number of Workers
Berrien	640
Atkinson	2
Coffee	77
Cook	4
Lowndes	127
All others	94
TOTAL	944

County of work:	BLECKLEY
County of Residence	Number of Workers
Bleckley	820
Dodge	96
Laurens	5
Pulaski	27
Twiggs	8
All others	366
TOTAL	1,322

County of work:	BROOKS
County of Residence	Number of Workers
Brooks	971
Lowndes	38
All others	0
TOTAL	1,009

County of work:	BULLOCH
County of Residence	Number of Workers
Bulloch	2,256
Bryan	22
Candler	54
Effingham	10
Emanuel	21
Evans	4
Jenkins	11
Screven	47
Burke	7
Chatham	19
Jefferson	14
Toombs	7
All others	40
TOTAL	2,512

County of work:	BURKE
County of Residence	Number of Workers
Burke	1,229
Emanuel	15
Jefferson	13
Jenkins	85
Richmond	40
Screven	56
All others	0
TOTAL	1,438

County of work:	BUTTS
County of Residence	Number of Workers
Butts	1,047
Henry	7
Jasper	35
Newton	10
Spalding	6
All others	1
TOTAL	1,106

County of work:	CARROLL
County of Residence	Number of Workers
Carroll	4,803
Coweta	22
Douglas	73
Fulton	59
Heard	38
Haralson	281
Paulding	161
Alabama	492
All others	166
TOTAL	6,095

County of work:	CAMDEN
County of Residence	Number of Workers
Camden	1,463
Brantley	1
Charlton	96
Glynn	162
All others	209
TOTAL	1,931

County of work:	CHATTOOGA
County of Residence	Number of WWorkers
Chattooga	4,346
Floyd	24
Gordon	6
Walker	423
Alabama	31
All others	188
TOTAL	5,018

County of work:	CANDLER
County of Residence	Number of Workers
Candler	477
Emanuel	2
Evans	2
Tattnall	37
All others	23
TOTAL	541

County of work:	CHEROKEE
County of Residence	Number of Workers
Cherokee	2,840
Bartow	14
Dawson	2
Forsyth	34
Fulton	12
Gordon	2
Pickens	42
All others	9
TOTAL	2,955

County of work:	CLARKE
County of Residence	Number of Workers
Clarke	9,375
Barrow	165
Jackson	361
Madison	737
Oconee	610
Oglethorpe	293
Banks	30
Elbert	30
Franklin	42
Greene	57
Gwinnett	3
Hall	15
Hart	38
Morgan	5
Walton	83
Wilkes	7
All others	142
TOTAL	11,993

County of work:	COBB
County of Residence	Number of Workers
Cobb	17,971
Bartow	694
Cherokee	818
Douglas	260
Fulton	5,813
Barrow	19
Carroll	348
Clayton	5
Coweta	14
Dawson	2
Fayette	5
Floyd	226
Forsyth	114
Gilmer	38
Gordon	290
Gwinnett	143
Haralson	235
Henry	14
Newton	25
Pickens	227
Polk	342
Walton	60
All others	1,349
TOTAL	29,012

County of work:	CLAYTON
County of Residence	Number of Workers
Clayton	1,310
Fayette	76
Fulton	2,449
Henry	253
Spalding	60
Butts	59
Newton	29
All others	243
TOTAL	4,479

County of work:	COFFEE
County of Residence	Number of Workers
Coffee	1,917
Atkinson	33
Bacon	4
Irwin	2
Telfair	29
Ware	3
All others	99
TOTAL	2,087

County of work:	COLQUITT
County of Residence	Number of Workers
Colquitt	5,209
Berrien	14
Brooks	29
Cook	6
Mitchell	16
Thomas	27
Tift	37
Worth	10
All others	35
TOTAL	5,383

County of work:	COLUMBIA
County of Residence	Number of Workers
Columbia	396
Lincoln	2
McDuffie	121
Richmond	81
South Carolina	30
Burke	11
Glascock	11
Jefferson	10
Warren	7
All others	11
TOTAL	680

County of work:	COOK
County of Residence	Number of Workers
Cook	1,084
Berrien	79
Brooks	41
Colquitt	10
Lowndes	18
Tift	2
All others	10
TOTAL	1,244

County of work:	COWETA
County of Residence	Number of Workers
Coweta	5,716
Carroll	571
Douglas	6
Fayette	10
Fulton	21
Heard	161
Meriwether	173
Spalding	18
Troup	270
All others	39
TOTAL	6,985

County of work:	CRISP
County of Residence	Number of Workers
Crisp	2,270
Dooly	101
Sumter	10
Turner	44
Wilcox	103
Worth	23
All others	26
TOTAL	2,577

County of work:	DECATUR
County of Residence	Number of Workers
Decatur	3,297
Baker	15
Grady	91
Miller	250
Mitchell	35
Seminole	142
Florida	183
All others	87
TOTAL	4,100

County of work:	DODGE
County of Residence	Number of Workers
Dodge	1,409
Bleckley	34
Laurens	61
Pulaski	8
Telfair	10
All others	2
TOTAL	1,524

County of work:	ELBERT
County of Residence	Number of Workers
Elbert	2,346
Hart	139
Lincoln	42
Madison	128
Oglethorpe	45
Wilkes	7
Franklin	73
All others	126
TOTAL	2,906

County of work:	DOUGLAS
County of Residence	Number of Workers
Douglas	566
Fulton	20
Paulding	40
Haralson	13
All others	0
TOTAL	639

County of work:	EMANUEL
County of Residence	Number of Workers
Emanuel	1,529
Bulloch	36
Burke	80
Candler	110
Jefferson	10
Jenkins	34
Johnson	82
Toombs	30
Treutlen	29
All others	43
TOTAL	1,983

County of work:	EARLY
County of Residence	Number of Workers
Early	764
Calhoun	18
Clay	3
Miller	24
Randolph	2
All others	0
TOTAL	811

County of work:	EVANS
County of Residence	Number of Workers
Evans	719
Tattnall	3
All others	50
TOTAL	772

County of work:	FLOYD
County of Residence	Number of Workers
Floyd	16,980
Bartow	384
Chattooga	213
Gordon	376
Polk	422
Alabama	240
Cobb	37
Haralson	12
Paulding	3
Walker	22
Whitfield	54
All others	152
TOTAL	18,895

County of work:	FORSYTH
County of Residence	Number of Workers
Forsyth	859
Cherokee	48
Dawson	62
Fulton	32
Gwinnett	62
Hall	8
All others	5
TOTAL	1,076

County of work:	FRANKLIN
County of Residence	Number of Workers
Franklin	903
Banks	11
Hart	178
Madison	88
Stephens	36
South Carolina	31
Elbert	8
All others	0
TOTAL	1,255

County of work:	GILMER
County of Residence	Number of Workers
Gilmer	781
Fannin	77
Gordon	3
Lumpkin	1
Murray	3
Pickens	163
All others	21
TOTAL	1,049

County of work:	GLYNN
County of Residence	Number of Workers
Glynn	9,322
Brantley	174
Camden	125
McIntosh	479
Wayne	69
Appling	37
Bacon	21
Charlton	3
Liberty	17
Long	4
Pierce	18
Tattnall	3
Ware	67
All others	86
TOTAL	10,425

County of work:	GORDON
County of Residence	Number of Workers
Gordon	2,923
Bartow	151
Cherokee	15
Floyd	40
Murray	79
Pickens	9
Whitfield	47
All others	80
TOTAL	3,344

County of work:	GRADY
County of Residence	Number of Workers
Grady	1,676
Decatur	15
Thomas	17
Tift	47
All others	0
TOTAL	1,755

County of work:	GREENE
County of Residence	Number of Workers
Greene	1,486
Clarke	28
Oconee	12
Oglethorpe	31
Putnam	2
Taliaferro	31
All others	12
TOTAL	1,602

County of work:	GWINNETT
County of Residence	Number of Workers
Gwinnett	3,221
Barrow	102
Forsyth	121
Fulton	114
Hall	126
Walton	6
All others	82
TOTAL	3,772

County of work:	HABERSHAM
County of Residence	Number of Workers
Habersham	2,861
Banks	315
Hall	76
Stephens	29
White	75
All others	39
TOTAL	3,395

County of work:	HALL
County of Residence	Number of Workers
Hall	10,444
Banks	158
Barrow	91
Dawson	74
Forsyth	123
Gwinnett	391
Habersham	93
Jackson	321
Lumpkin	66
White	138
All others	301
TOTAL	12,200

County of work:	HARALSON
County of Residence	Number of Workers
Haralson	2,324
Carroll	883
Paulding	31
Polk	61
Alabama	127
All others	8
TOTAL	3,434

County of work:	HART
County of Residence	Number of Workers
Hart	1,460
Elbert	28
Franklin	27
Madison	5
All others	3
TOTAL	1,523

County of work:	HENRY
County of Residence	Number of Workers
Henry	1,036
Butts	31
Clayton	49
Newton	3
Spalding	155
Fulton	64
All others	23
TOTAL	1,361

County of work:	HOUSTON
County of Residence	Number of Workers
Houston	7,138
Bibb	6,664
Bleckley	321
Crawford	90
Dooly	220
Macon	166
Peach	515
Pulaski	296
Crisp	45
Dodge	531
Jones	93
Lamar	53
Laurens	139
Monroe	144
Taylor	125
Upson	58
Wilkinson	47
Wilcox	124
All others	464
TOTAL	17,233

County of work:	JACKSON
County of Residence	Number of Workers
Jackson	2,728
Banks	233
Barrow	21
Clarke	62
Hall	21
Madison	183
Oconee	4
All others	64
TOTAL	3,316

County of work:	JEFF DAVIS
County of Residence	Number of Workers
Jeff Davis	927
Appling	50
Bacon	19
Coffee	8
Montgomery	7
Telfair	59
Toombs	1
Wheeler	27
All others	0
TOTAL	1,098

County of work:	JEFFERSON
County of Residence	Number of Workers
Jefferson	1,299
Burke	46
Emanuel	70
Glascock	73
Johnson	74
McDuffie	52
Richmond	40
Warren	26
Washington	54
All others	46
TOTAL	1,780

County of work:	JENKINS
County of Residence	Number of Workers
Jenkins	821
Bulloch	33
Burke	38
Emanuel	60
All others	109
TOTAL	1,061

County of work:	LAMAR
County of Residence	Number of Workers
Lamar	1,612
Butts	2
Monroe	12
Pike	123
Spalding	20
Upson	97
All others	14
TOTAL	1,880

County of work:	LAURENS
County of Residence	Number of Workers
Laurens	4,546
Bleckley	10
Dodge	26
Emanuel	25
Johnson	213
Treutlen	91
Twiggs	2
Wheeler	41
Wilkinson	10
All others	96
TOTAL	5,060

County of work:	LOWNDES
County of Residence	Number of Workers
Lowndes	7,891
Berrien	128
Brooks	175
Cook	112
Echols	29
Lanier	155
Florida	49
Atkinson	16
Clinch	51
Colquitt	24
Thomas	8
Tift	25
All others	79
TOTAL	8,742

County of work:	MACON
County of Residence	Number of Workers
Macon	852
Dooly	143
Houston	25
Peach	25
Schley	33
Sumter	8
Taylor	74
All others	14
TOTAL	1,174

County of work:	McDUFFIE
County of Residence	Number of Workers
McDuffie	1,646
Columbia	39
Glascock	107
Jefferson	126
Lincoln	9
Richmond	4
All others	69
TOTAL	2,000

County of work: MERIWETHER	
County of Residence	Number of Workers
Meriwether	2,483
Coweta	2
Harris	152
Pike	41
Talbot	165
Troup	52
Upson	138
All others	65
TOTAL	3,098

County of work: MONTGOMERY	
County of Residence	Number of Workers
Montgomery	279
Emanuel	1
Toombs	29
Treutlen	27
Wheeler	123
Johnson	12
Laurens	19
Telfair	6
All others	0
TOTAL	496

County of work: MITCHELL	
County of Residence	Number of Workers
Mitchell	1,891
Baker	35
Colquitt	56
Dougherty	30
Grady	46
Thomas	57
Worth	24
All others	7
TOTAL	2,146

County of work: MORGAN	
County of Residence	Number of Workers
Morgan	808
Greene	18
Jasper	3
Newton	20
Oconee	23
Putnam	27
Walton	30
All others	16
TOTAL	945

County of work: MONROE	
County of Residence	Number of Workers
Monroe	1,174
Bibb	37
Butts	54
Crawford	22
Jasper	3
Jones	2
Lamar	36
Upson	11
All others	22
TOTAL	1,361

County of work: MURRAY	
County of Residence	Number of Workers
Murray	489
Gordon	1
Whitfield	16
Tennessee	19
Polk	93
All others	0
TOTAL	618

County of work:	NEWTON
County of Residence	Number of Workers
Newton	4,097
Butts	7
Henry	52
Jasper	18
Rockdale	75
Walton	111
Fulton	39
All others	16
TOTAL	4,415

County of work:	PICKENS
County of Residence	Number of Workers
Pickens	1,321
Bartow	1
Cherokee	188
Dawson	9
Forsyth	8
Gilmer	76
Gordon	15
All others	12
TOTAL	1,630

County of work:	PAULDING
County of Residence	Number of Workers
Paulding	559
Carroll	10
Cobb	42
Douglas	19
Haralson	14
Polk	3
Floyd	22
All others	23
TOTAL	692

County of work:	PIERCE
County of Residence	Number of Workers
Pierce	647
Bacon	7
Brantley	16
Ware	50
All others	7
TOTAL	727

County of work:	PEACH
County of Residence	Number of Workers
Peach	1,228
Bibb	9
Crawford	82
Houston	13
Macon	83
Taylor	30
All others	42
TOTAL	1,487

County of work:	POLK
County of Residence	Number of Workers
Polk	5,000
Bartow	21
Floyd	147
Haralson	132
Paulding	16
Alabama	47
Carroll	37
Chattooga	15
All others	53
TOTAL	5,468

County of work:	PULASKI
County of Residence	Number of Workers
Pulaski	753
Bleckley	47
Dodge	79
Dooly	7
Wilcox	15
All others	4
TOTAL	905

County of work:	PUTNAM
County of Residence	Number of Workers
Putnam	1,026
Baldwin	6
Jasper	51
Jones	5
Morgan	72
All others	12
TOTAL	1,172

County of work:	RABUN
County of Residence	Number of Workers
Rabun	630
Habersham	1
Towns	17
North Carolina	139
South Carolina	10
All others	0
TOTAL	797

County of work:	ROCKDALE
County of Residence	Number of Workers
Rockdale	1,067
DeKalb	2
Gwinnett	18
Henry	10
Newton	187
Walton	34
Fulton	172
All others	17
TOTAL	1,507

County of work:	SCREVEN
County of Residence	Number of Workers
Screven	1,196
Bulloch	1
Burke	2
Richmond	12
All others	0
TOTAL	1,211

County of work:	SPALDING
County of Residence	Number of Workers
Spalding	9,308
Butts	68
Clayton	30
Coweta	48
Fayette	156
Henry	132
Lamar	244
Meriwether	21
Monroe	19
Pike	277
Upson	72
All others	55
TOTAL	10,430

County of work:	STEPHENS
County of Residence	Number of Workers
Stephens	4,216
Banks	77
Franklin	470
Habersham	198
Hart	13
Rabun	13
South Carolina	134
All others	24
TOTAL	5,145

County of work:	TATTNALL
County of Residence	Number of Workers
Tattnall	681
Appling	18
Candler	8
Evans	20
Liberty	4
Toombs	34
Wayne	14
All others	22
TOTAL	801

County of work:	SUMTER
County of Residence	Number of Workers
Sumter	2,611
Crisp	17
Dooly	16
Lee	36
Macon	18
Marion	22
Schley	83
Terrell	1
Webster	15
All others	155
TOTAL	2,974

County of:work:	TELFAIR
County of Residence	Number of Workers
Telfair	1,164
Ben Hill	4
Dodge	4
Jeff Davis	5
Wheeler	59
Laurens	25
All others	85
TOTAL	1,346

County of work:	TALBOT
County of Residence	Number of Workers
Talbot	452
Harris	4
Meriwether	37
Muscogee	30
Taylor	32
All others	1
TOTAL	556

County of work:	TERRELL
County of Residence	Number of Workers
Terrell	969
Dougherty	92
Lee	4
Randolph	8
Webster	12
All others	0
TOTAL	1,085

County of work:	THOMAS
County of Residence	Number of Workers
Thomas	5,378
Brooks	63
Colquitt	59
Grady	351
Mitchell	56
Florida	18
All others	112
TOTAL	6,037

County of work:	TROUP
County of Residence	Number of Workers
Tropu	11,789
Coweta	66
Harris	117
Heard	425
Meriwether	179
Alabama	1,127
All others	116
TOTAL	13,819

County of work:	TIFT
County of Residence	Number of Workers
Tift	3,106
Berrien	71
Colquitt	9
Cook	18
Irwin	29
Turner	16
Worth	6
All others	15
TOTAL	3,270

County of work:	UPSON
County of Residence	Number of Workers
Upson	6,042
Crawford	17
Lamar	87
Meriwether	22
Monroe	8
Pike	353
Talbot	19
Taylor	83
All others	47
TOTAL	6,678

County of work:	TOOMBS
County of Residence	Number of Workers
Toombs	2,367
Candler	2
Emanuel	34
Jeff Davis	2
Montgomery	222
Tattnall	130
Treutlen	64
All others	64
TOTAL	2,885

County of work:	WALKER
County of Residence	Number of Workers
Walker	5,316
Catoosa	389
Chattooga	159
Dade	93
Whitfield	13
Alabama	48
Tennessee	1,053
All others	31
TOTAL	7,102

County of work:	WALTON
County of Residence	Number of Workers
Walton	3,359
Barrow	43
Gwinnett	38
Morgan	66
Newton	93
Oconee	31
All others	21
TOTAL	3,651

County of work:	WARE
County of Residence	Number of Workers
Ware	4,676
Atkinson	41
Bacon	151
Brantley	166
Charlton	20
Clinch	99
Coffee	100
Pierce	453
All others	255
TOTAL	5,961

County of work:	WASHINGTON
County of Residence	Number of Workers
Washington	1,860
Baldwin	15
Glascock	7
Hancock	2
Jefferson	3
Johnson	52
Wilkinson	4
All others	26
TOTAL	1,969

County of work:	WAYNE
County of Residence	Number of Workers
Wayne	2,458
Appling	7
Brantley	1
Glynn	4
Long	114
McIntosh	1
Pierce	63
Tattnall	70
Liberty	66
Ware	41
All others	253
TOTAL	3,078

County of work:	WHITE
County of Residence	Number of Workers
White	629
Hall	13
Habersham	37
Lumpkin	13
Towns	59
Union	1
All others	0
TOTAL	752

County of work:	WHITFIELD
County of Residence	Number of Workers
Whitfield	9,157
Catoosa	55
Gordon	218
Murray	965
Walker	196
Tennessee	143
All others	102
TOTAL	10,836

County of work:	WILKES
County of Residence	Number of Workers
Wilkes	1,157
Elbert	29
Greene	13
Lincoln	111
Oglethorpe	45
Taliaferro	39
Warren	5
All others	109
TOTAL	1,508

County of work:	WILKINSON
County of Residence	Number of Workers
Wilkinson	1,206
Baldwin	103
Bibb	22
Bleckley	3
Johnson	28
Jones	50
Laurens	11
Twiggs	68
Washington	32
All others	1
TOTAL	1,524

County of work:	WORTH
County of Residence	Number of Workers
Worth	920
Colquitt	6
Dougherty	10
Mitchell	2
Tift	11
Turner	2
All others	0
TOTAL	951